NOVEMBER, 1954

PRODUCTS finishing

GIVE THE UNITED WAY

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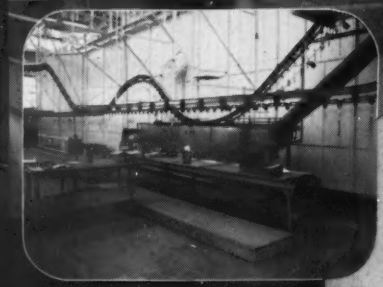
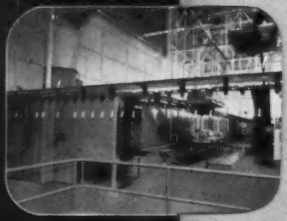
Finishes on *Metal* Products

Dual Cincinnati FINISHING SYSTEMS



AUTOMATIC PAINT DIP and CHROMODIZER OPERATIONS:

1. Alkaline Clean
2. 1st Rinse
3. Passivate
4. 2nd Rinse
5. Hot Air Blow-Off
6. Paint Dip
7. Oven Bake
8. Stripper } For empty conveyor hangers.
9. Rinse }



save 60% in time

. . . for noted aircraft manufacturer

A double conveyor line cleaning and paint finishing system in a well known mid-western aircraft plant handles all sorts of formed aluminum parts up to 15" x 20" in size. Moving at 18 feet per minute, the conveyors carry the parts through the various operations, removing grease, oil and chips prior to painting and assembly.

Among interesting design features: The arrangement of the system around the outer perimeter of the room, leaves the center clear for storage and loading and unloading operations. The zinc chromate dip tank has a refrigeration system to maintain tank temperature at 74° F., reducing evaporation of volatiles. The system is protected with CO_2 equipment and automatic paint tank dump.

As was done in this installation, Cincinnati Engineers will gladly design equipment to suit your needs. Whatever your cleaning or finishing problems, a survey costs you nothing, may point the way to substantial savings. Write today for booklet: "Finishing Systems."

Cincinnati

CLEANING & FINISHING MACHINERY CO., INC.
2008 HAGEMAN STREET, SHARONVILLE, OHIO

Please send additional information on the products shown on the following pages of this issue. (List page numbers and names of manufacturer.)

PRODUCTS FINISHING
NOVEMBER, 1954

Page No.	Name of Manufacturer	Page No.	Name of Manufacturer

COMPANY _____

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CITY _____ ZONE ____ STATE _____

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Your Monthly Source For Finishing Ideas

Please send additional information on the products shown on the following pages of this issue. (List page numbers and names of manufacturer.)

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NOVEMBER, 1954

Page No.	Name of Manufacturer	Page No.	Name of Manufacturer

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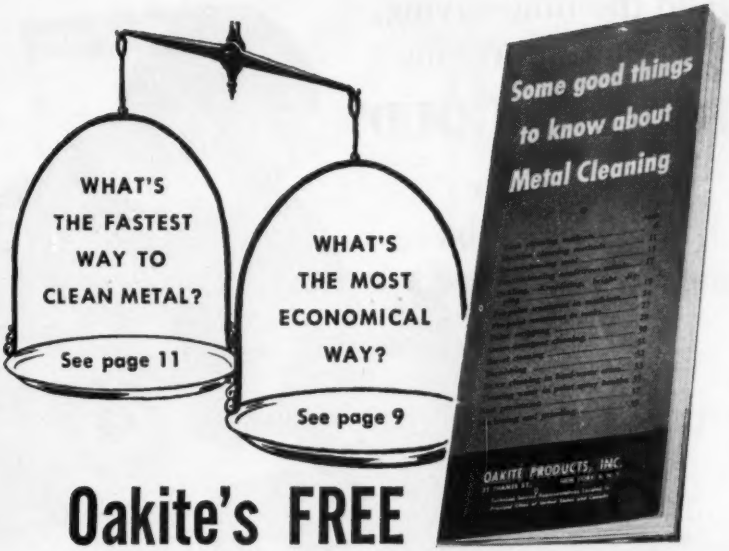
WHAT'S THE FASTEST WAY TO CLEAN METAL?
See page 11
WHAT'S THE MOST ECONOMICAL WAY?
See page 9
Some good things to know about Metal Cleaning
OAKITE PRODUCTS, INC.

Oakite's FREE Booklet on Metal Cleaning

answers many questions that mean better production, more profit for you. Just look at the table of contents:

Tank cleaning methods
Machine cleaning methods
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Pre-paint treatment in machines
Pre-paint treatment in tanks and by hand
Paint stripping
Steam-detergent cleaning
Barrel cleaning
Burnishing
Better cleaning in hard-water areas
Treating wash water in paint spray booths
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FREE For your copy of the 44-page illustrated booklet, *"Some good things to know about Metal Cleaning"*, write Oakite Products, Inc., 20 Rector St., New York 6, N. Y.

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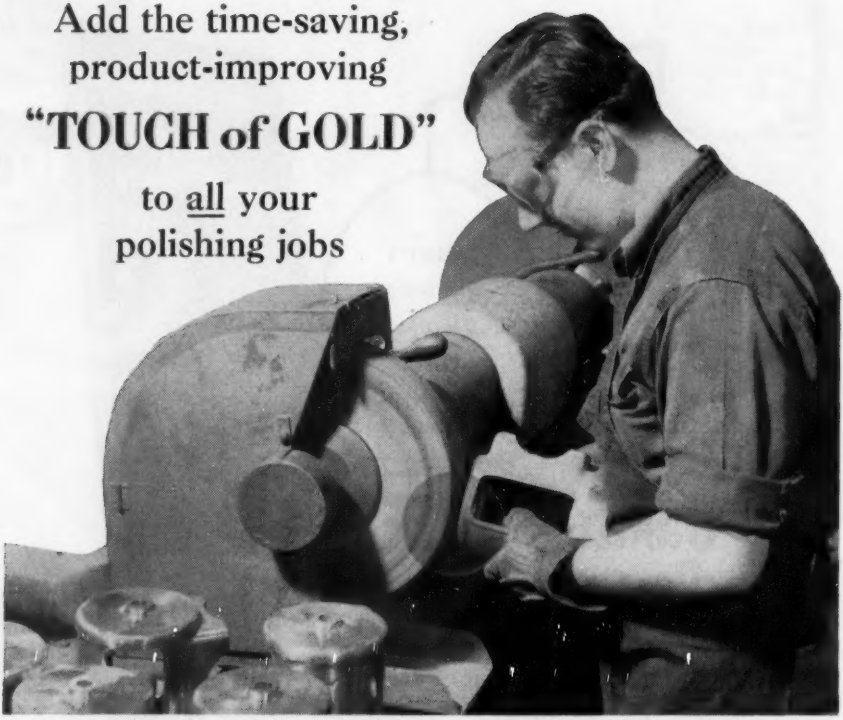
SPECIALIZED INDUSTRIAL CLEANING MATERIALS • METHODS • SERVICE

Add the time-saving, product-improving "TOUCH of GOLD" to all your polishing jobs



Marine Equipment Parts get the value-adding "Touch of Gold" when polished with Norton ALUNDUM* abrasive

When you standardize on Norton ALUNDUM abrasive, every polishing job you do gets off to a better start — and finish!

One reason is because the grains in this Norton-developed abrasive are thoroughly uniform in size, structure and chemical composition. Which means thoroughly uniform polishing, with no oversized grains to mar surfaces, and no flats, slivers or undersized grains to loaf on the job. And you get *fast* polishing, too, because ALUNDUM abrasive is famous for rapid, clean-cutting action.

Another reason is that ALUNDUM is specially processed to give it high capillarity. With *all* grains soaking up cement or glue uniformly and adequately, *each* grain is held firmly — assuring long-lasting, top-performing polishing wheels.

These Advantages In YOUR Polishing

mean better-finished, better-looking products in less time and for less money — the sure "Touch of Gold" you can add to all your set-ups, manual or automatic.

Your Norton Distributor

can supply you promptly with ALUNDUM polishing abrasive in the types, sizes and surface treatments you need. Or write to NORTON COMPANY, Worcester 6, Mass. Distributors in all principal cities, listed in your phone directory yellow pages under "Grinding Wheels". *Export:* Norton Behr-Manning Overseas Incorporated, Worcester 6, Mass.

G-271

NORTON

ABRASIVES

Making better products... to make other products better

*Trade-Mark Reg. U. S. Pat. Off. and Foreign Countries

Introducing

NICKEL-LUME

FOR BRIGHT NICKEL BARREL PLATING

H-VW-M takes great pleasure in introducing the Nickel-Lume Barrel Plating Process, ideal for producing bright-from-the-barrel decorative nickel coatings on small automotive parts, jewelry, novelties, nail clippers, files, hardware, fasteners, screws, and similar items. The new process is an application of Nickel-Lume, which made its appearance a year ago as an outstanding development in a bright nickel for rack plating.

Barrel installations have been in operation in the field for some time with many enthusiastic users. An important feature of this bright-nickel barrel process, is the consistency of color maintained even in recessed areas, as in hard-to-plate threaded parts. Subsequent chromium plating can be handled with ease since the nickel deposit is very active and, unlike many bright barrel processes, is not brittle.

Advantages of Nickel-Lume Barrel Plating are:

Uniform Brightness—deposits, right out of the barrel, are uniformly bright with a pleasing "clean," white color even in hard-to-plate areas.

Low Stress—deposits are ductile and have a low compressive or tensile internal stress.

Activation Not Required—no activation is required between the nickel and chromium or other subsequent deposits.

High Tolerance To Impurities—organics are tolerated in greater concentrations than in other bright baths.

Complete Control—complete analytical control of all constituents.

Wide Operating Range—current density and temperature have a wide range with no resultant loss of brightness.

Good Corrosion Resistance—nature of the addition agent plus constant deposit characteristics give a high level of protection to the plated surface.

Stability—not a "fussy" bath—remarkably stable over long periods of operation.

Nickel-Lume for Barrel Plating is the direct result of continuous research conducted at H-VW-M . . . another example of Platemanship in action. Complete details and a new instruction manual will be forwarded on request.

PLATEMANSHIP

Your H-VW-M combination—of the most modern testing and development laboratory—of over 60 years experience in every phase of plating and polishing — of a complete equipment, process and supply line for every need.

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H-VW-M

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EGYPTIAN
Kitchen Cabinet
BAKING WHITE
COVERAGE CHECK

Reveals Amazing Economy Hidden in every Gallon Can

41,280 sq. ft. covered at .00929 of a cent per sq. ft.

Routine finishing-room, cost-checks by product manufacturers sometimes bring to light facts about a supplier's product that amaze the supplier himself.

For instance, recently an elated metal kitchen cabinet manufacturer, coating his product with Egyptian Baking White showed us finishing material cost figures compiled during an actual production run.

COVERAGE CHECK

cabinets coated with Egyptian Baking White	564
cabinets recoated	40
total cabinets coated	604

604 Cabinets Coated: each cabinet 68.344 sq. ft. Total Area Coated 41,280 sq. ft.

FINISHING MATERIAL CONSUMED

total gallons Egyptian Baking White	106
total gallons Egyptian Reducer	20

Finishing Material Cost per square foot of Coverage .00929 of a cent

Even in this day of good paint coverage, we think this establishes some kind of a record.

Doesn't it make sense that the Hidden Economy . . . BETTER COVERAGE . . . in every gallon of Egyptian Baking White could reduce your finishing material costs too . . . and at no sacrifice of any required characteristic of a quality finish. Write to-day for detailed information or invite an Egyptian Industrial Finishes Specialist to call on you. No obligation of course.

EGYPTIAN *Industrial Finishes*

The EGYPTIAN LACQUER MANUFACTURING COMPANY

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EXECUTIVE OFFICES, ROCKEFELLER CENTER, N. Y. • Plants: South Kearny, N. J.—Lafayette, Ind.

VOLUME 19 NUMBER 2 NOVEMBER, 1954

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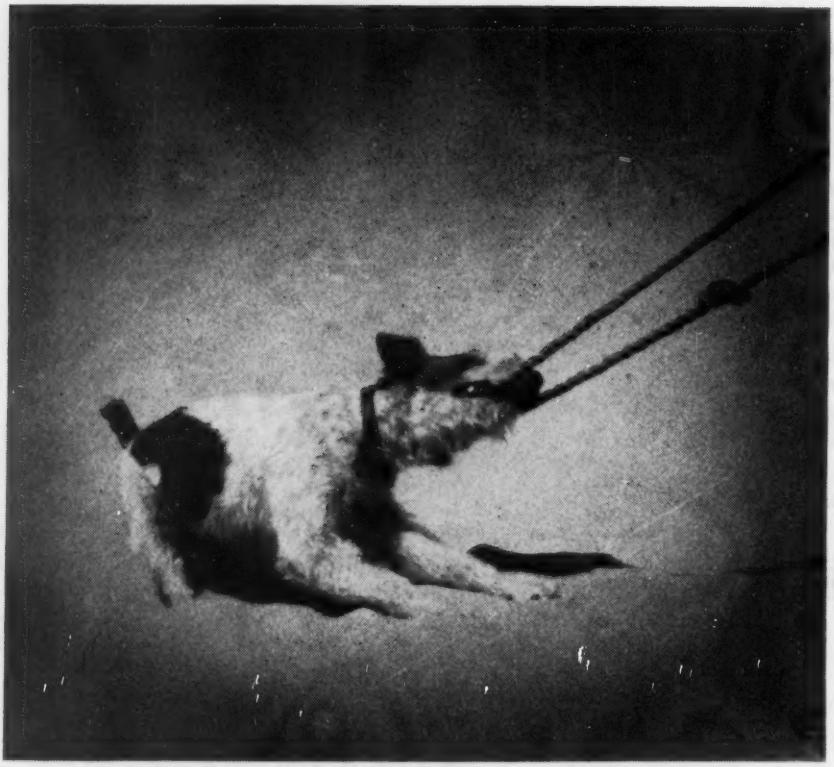

BONDERITE holds paint to metal!

There's a constant tug-of-war between corrosive action and the paint finish on your metal products. The paint tries to stick to the metal; the natural forces of corrosion try to lift it off.

Bonderite is the "anchor man", throwing its strength on the side of lasting, durable paint finishes.

This excellent product, simple and economical in operation and uniformly effective in results, creates a nonmetallic coating integral with the metal surfaces. The coating anchors organic finishes, is a stout corrosion resistant, and prevents the spread of finish failure should the paint film be broken by scratch or dent.

Bonderite adds quality to painted metal products by lengthening the durability and appearance life of paint finishes. Bonderite adds sales appeal because your customers know about it and the benefits it brings.

Investigate Bonderite for your product NOW! Write or call.

*Bonderite, Bonderlube, Parco, Parco Lubrite—Reg. U.S. Pat. Off.

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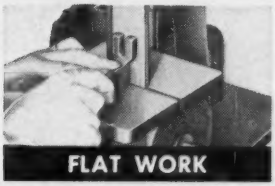
BONDERITE	BONDERITE and BONDERLUBE	PARCO COMPOUND	PARCO LUBRITE	TROPICAL
abrasion resistant paint base	aids in cold forming of metals	rust resistant	wear resistant for friction surfaces	heavy duty maintenance paints since 1883

Hammond
of KALAMAZOO

FOR DEBURRING

Model 50-DD



It is amazing how soon these Abrasive Belt Machines pay for themselves.

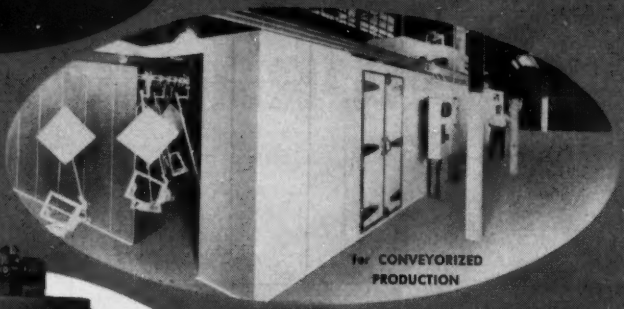
11 combinations available with or without Duskolector.

"Clip" this ad to your letterhead. 20 page catalog will be sent at once.

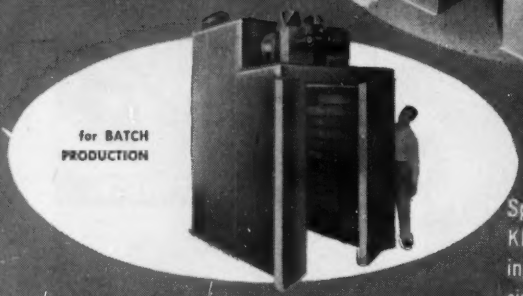
Hammond Machinery Builders INC

1622 DOUGLAS AVENUE KALAMAZOO, MICHIGAN

KIRK AND BLUM
INDUSTRIAL OVENS



for CONVEYORIZED PRODUCTION



for BATCH PRODUCTION

for TESTING or LABORATORY

Specially designed to solve your problem . . . KIRK & BLUM Ovens meet all needs for drying, baking, dehydrating or other more specialized requirements.

Often Kirk & Blum Ovens up to freight car size are shipped completely assembled, tested and ready to operate. Then, they can be connected and in use in a few hours, saving time and expense. Illustrated are typical installations which show the wide range of KIRK & BLUM experience over more than 47 years.

If you have an oven application, discuss it with a KIRK & BLUM Engineer. There's no obligation. Write for free literature.

THE KIRK & BLUM MFG. CO.,
3116 Forrer St., Cincinnati 9, Ohio

KIRK AND BLUM
INDUSTRIAL OVENS

How Pittsburgh Red Center Construction Provides

Faster cutting while maintaining smooth finish • Freedom from shedding • Perfect balance • Longer life

In conventional brushes, when faster cutting action is desired, coarser wire is used. But increasing the wire gauge causes brittleness, destroying the wearing quality of the brush, and resulting in excessive scoring of the work.

Pittsburgh has solved this problem by maintaining the same ideal gauge wire in every brush, but increasing the fill and diameter of the hub and center plate of brushes designed for faster cutting. Thus, although cutting speed is increased,work remains unscored and the wire does not lose its inherent power to flex. These Red Center brushes last longer, maintain perfect balance throughout life, and do a better job all around.

This is just one example of superior Pittsburgh construction, engineered for both general and specific applications. For details of the complete line, write for free Catalog No. 54-W. Address: PITTSBURGH PLATE GLASS CO., *Brush Div.*, Dept. V11, 3221 Frederick Ave., Baltimore 29, Md.

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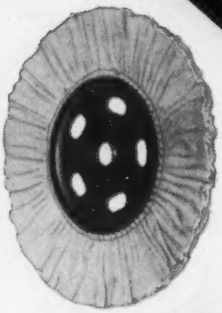
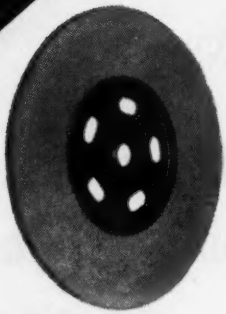
FROM START TO FINISH





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These famous long-wearing buffs run cool under all buffing conditions. High count bias-cut cloth is assembled on ventilated steel centers. Each section is perfectly balanced and faced—requires no raking.

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Descriptive Catalogs Sent on Request

FORMAX MFG. CORP.

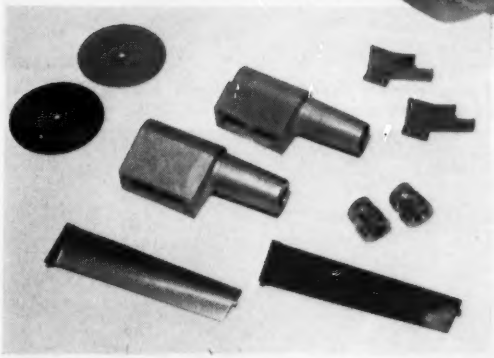
DETROIT 7, MICHIGAN

"THE FOUR McALEERS"

For Rapid Barrel Finishing

EXOLON

Tumbling Abrasive



Various stamped, die cast, forged and screw machine parts before and after barrel finishing with EXOLON abrasives.

• More and more manufacturers are turning to barrel finishing for its big savings and uniformity over individual hand finishing.

Naturally, the process is only as effective as the abrasive used. In response to the demand for a fast-cutting, long-life abrasive, EXOLON has developed this superhard aluminum oxide grain which is *barrel-finished itself* for non-scratch, precision smoothing of your metal surfaces.

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★ IN CLEANING UP
★ IN REMOVING BURRS
★ IN REMOVING SCALE

from:

- forgings
- metal castings
- metal stampings
- machined parts

which can be handled in the barrel.

WRITE TODAY FOR DETAILS including our new fact-filled catalog.

The EXOLON Company

943 East Niagara Street Tonawanda, N. Y.
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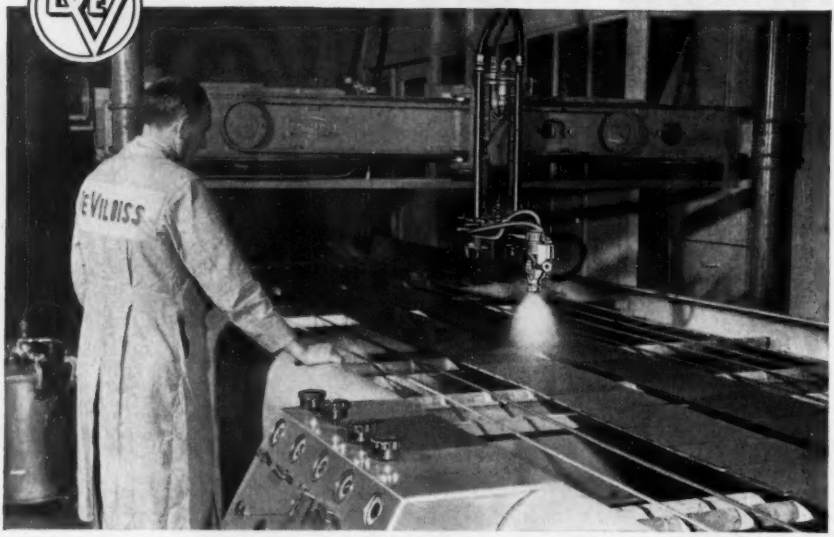
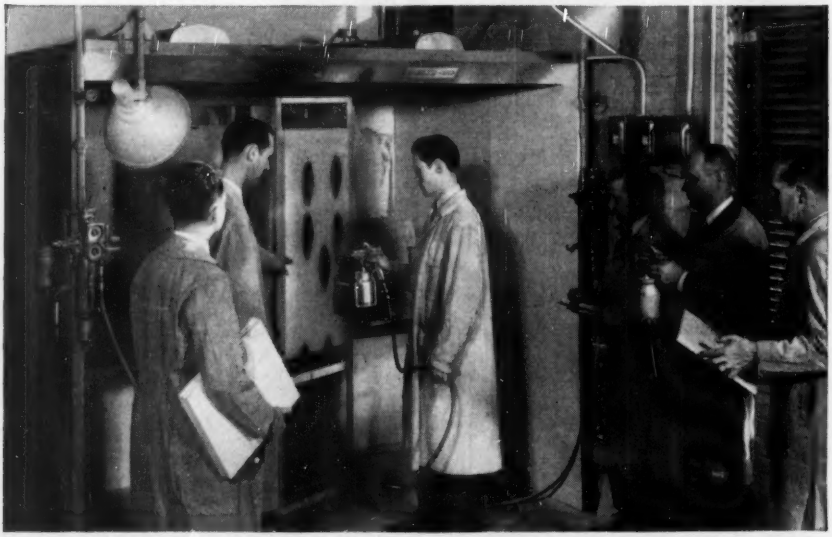
Manufacturers of SILICON CARBIDE and ALUMINUM OXIDE ABRASIVES

Here's what we



DeVilbiss Research Engineer works out most efficient means of painting a customer's product on an automatic machine.



Spray Painting School—Painters and supervisors learn the latest spray methods and proper techniques in one-week courses at the tuition-free DeVilbiss School.

mean by

"For better service, buy DeVilbiss"

Besides a complete line of precision-made spray-painting equipment, DeVilbiss offers you a host of services that help you get the most out of these products.

Take DeVilbiss Research, for example. Our engineers work in modern laboratories with complete experimental facilities. They meet industry's constant demands for the solutions for spray-applying all types of coatings to all kinds of products.

DeVilbiss Production Service is another aid that puts experienced technicians at your disposal in your plant. These field representatives analyze your facilities and make recommendations to improve your production. Then they supervise the installation of equipment and train your operators on the job.

If you are in any way responsible for a finishing or other coating operation, it will pay you to find out how DeVilbiss Research, Production Service, and many other DeVilbiss Services, can benefit you. For information, contact your local DeVilbiss supplier, our branch office or factory.

For lower costs and higher profits, take advantage of these other DeVilbiss Services:

Rebuilt Exchange Service — Assures added life, prolonged efficiency to all users of DeVilbiss spray guns and compressors.

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DEVILBISS

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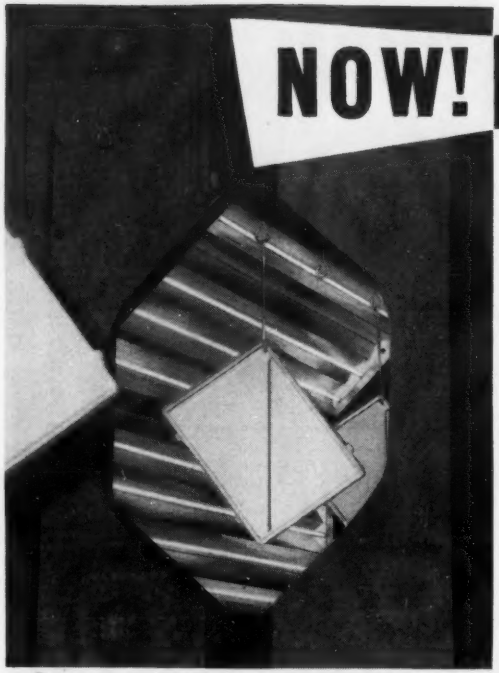


NOW! CLEPCO gives you COLOR BLIND FUSED QUARTZ RADIANT HEATERS

RECENT PAINT OVEN TESTS

Proved all timings for CLEPCO Radiant Ovens showed independence of color used.

CLEPCO RADIANT OVENS SHOWED independence of weight of metal:—light gauges up to ⅛" showed uniform results at same speed.

THESE TESTS PROVED

CLEPCO Fused Quartz Radiant Heaters will reduce costs, speed production. Smaller floor space was required. More desirable than any existing paint ovens.

HEAD TECHNICIANS

of large auto manufacturer determined operating costs per piece were approx ½ that of standard infra-red bulb oven.

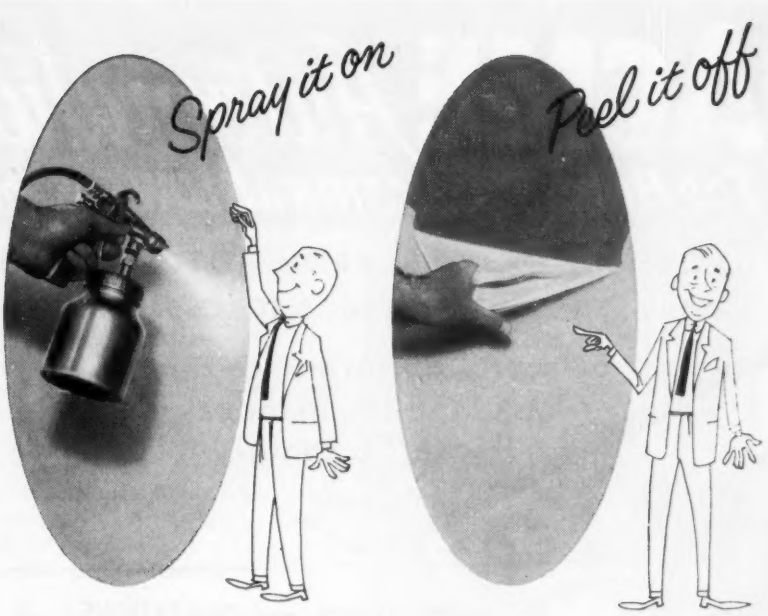
FURTHER TESTS PROVED

Pieces in gas fired paint oven ran —— 45 Min. at 300° F.
Same pieces in Clepco Quartz Oven ran 6 Min. at 270° F.
Metal castings in bulb oven took —— 50 Min.
Same castings in Clepco Quartz Oven took 18 Min.
A MORE VOLATILE SOLVENT IN SAME PAINT DROPPED TIME TO 8 MIN.

Also manufacturers of well known Clepco Quartz Immersion Heaters for acid and alkaline heating jobs.

Write us for literature.

CLEVELAND PROCESS COMPANY
1965 EAST 57th STREET • CLEVELAND 3, OHIO



new PEEL FILMITE removes dried over-spray from paint booths in minutes!

Using regular spray equipment, spray DuBois PEEL FILMITE over clean booth. As soon as walls are dry, your booth is ready to operate. When overspray accumulates, score the coating; peel off big sheets at a time.

PEEL FILMITE stays flexible, doesn't age. Contact DuBois today for details on PEEL FILMITE, the new high strength, peelable plastic film! It cuts costs . . . cuts labor . . . it's

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ACME Automatics

FOR HIGH PRODUCTION at LOW COST on

POLISHING and BUFFING • DE-BURRING
WIRE BRUSHING and MICRO-FINISHING

• Proved performance and dependability in industry for half a century

RECOMMENDATIONS and QUOTATIONS

• We will be pleased to receive blue prints or preferably finished and unfinished samples of the part you contemplate finishing together with detailed information on present finishing operation and production requirements. On receipt of samples and data we will offer recommendations and quotations.

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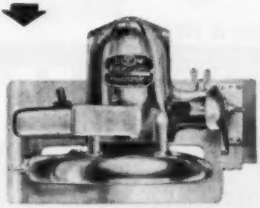
(2) *Here's the complex casting*



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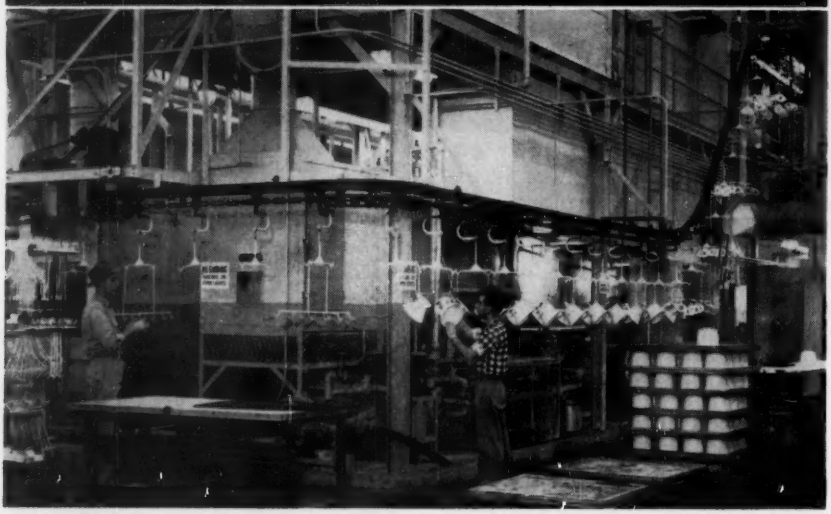

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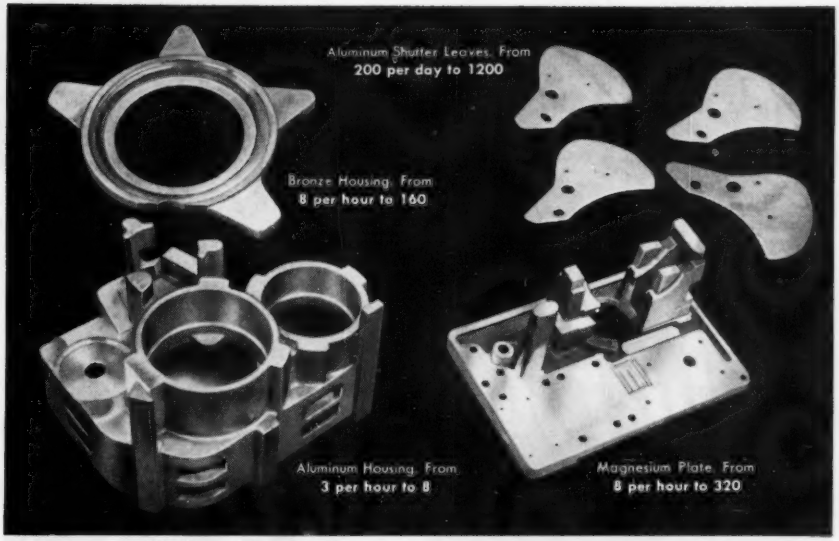
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Pf editorial

Vol. 19, No. 2

NOVEMBER, 1954

A Nickel Recovery Process

A great deal of nickel goes down the drain each day. This nickel is contained in rinse water from nickel plating operations, spent nickel dip solutions from porcelain enameling plants, and similar wastes from other metal finishing activities.

It is possible that the ground work for a new process for recovering nickel from wastes which are now being discarded, has been laid by work done at Manhattan College.

Dr. Arthur B. Kemper, head of the Chemistry Department of the college, reports that a simple chemical process has been developed for precipitating the nickel from dilute solutions in a filterable form. The filtrate obtained after the precipitation of the nickel is said to contain between 10 and 100 parts per million of nickel, depending upon the temperature at which the process is operated. Normally the nickel is removed so completely that the filtrate does not react to the dimethylglyoxime test.

The recovered nickel is in the form of a non-gelatinous precipitate, which is easily filtered and easily redissolved for addition to plating or other process solutions.

The investigation has not resulted in a fully-developed process. Further research is necessary. Those interested in the possibilities of the new process are urged to contact Dr. Arthur B. Kemper, Chemistry Department, Manhattan College, New York 71, N. Y.

Although nickel is not as difficult to obtain today as it has been in the past, there is still a great deal of nickel being lost unnecessarily. In the not-too-distant future it may be possible for platers and other users of nickel solutions to recover much of the nickel that is now being wasted.

Ezra A. Blount

—EDITOR

32nd Annual Meeting

Federation of Paint and Varnish Production Clubs

PALMER HOUSE — CHICAGO, ILLINOIS
NOVEMBER 16 - 20

19th Paint Industries' Show

This is the tentative program of the 32nd Annual Meeting of the Federation of Paint and Varnish Production Clubs, to be held at the Palmer House, Chicago, Ill., November 16-20, 1954. Registration will open at noon on Wednesday, November 17, and at 8:00 a.m. daily thereafter. The Paint Industries' Show, with 100 exhibit spaces and 72 exhibitors, will be open from 2:00 to 6:00 p.m. on Tuesday, November 16, and from 9:30 a.m. to 6:00 p.m. daily thereafter. The Show will close on Saturday, November 20 at 2:00 p.m.

Dr. John T. Rettaliata, Keynote Speaker

Dr. Calvin J. Overmyer, President

Dr. J. S. Long, Mattiello Lecturer

Committees

General Chairman—E. J. Murphy, Montgomery Paint Works.

Federation Meetings Committee — Raymond C. Adams, Southern Club; W. C. Ashley, A. F. Bohnert, J. E. Creager, T. L. Dahlberg, M. A. Glaser, Chicago Club; M. Bauman, New York Club; J. E. Hoffmeyer, Dallas Club; J. Scala, Northwestern Club; D. D. Wyatt, Southern Club.

Ladies Committee—Mrs. C. J. Overmyer, honorary chairman; Mrs. E. J. Murphy, chairman; Mrs. R. A. Adams, vice chairman; Mrs. N. P. Beckwith, Mrs. M. A. Glaser, Mrs. C. H. Flynn, Mrs. R. G. Gohman, Mrs. T. F. Byron, Mrs. C. M. Scholle, Mrs. L. B. Odell, Mrs. C. L. Smith.

Registration—Richard Gohman, Standard-Toch Chemicals, (chairman); R. R. Bruhn, Sherwin-Williams Co.; W. L. Hancock, Martin-Senour Co.; W. S. Houck, Glidden Co.; Ray V. Jablon, Illinois Paint Works; E. F. Jago, Great Lakes Paint & Varnish Co.; E. H. Miller, Midland Industrial Finishes; B. Orwig, Sherwin-Williams Co.; and H. E. Schade, Armstrong Paint & Varnish Works.

Banquet—C. M. Scholle, Jewel Paint & Varnish Co., (chairman); S. Danoff, Midland Industrial Finishes; and R. J. Gnaedinger, John A. Steen Varnish Co.

Entertainment—T. F. Byron, Armstrong Paint & Varnish Works, (chairman); W. C. Ashley, Pyroxylin Products, Inc.; and L. E. Ludwig, Sherwin-Williams Co.

Dance — C. F. Tilgner, Illinois Paint Works, (chairman); C. Kosek, Wilson & Co.; and D. T. Woods, Armstrong Paint & Varnish Works.

Floor—R. Mountsier, Illinois Paint Works, (chairman); A. Bohnert, Enterprise Paint Mfg. Co.; A. E. Counter, Baker Chemical Co.; T. L. Dahlberg, Jr., John A. Steen Varnish Co.; W. Fritsch, Enterprise Paint Mfg. Co.; Carl Lemcke, McWhorter Chemicals, Inc.; and G. R. Penn, Bradley-Vrooman Co.

Publicity—Howard G. Scholl.

Meeting

Tuesday, November 16

2:00 P. M.—Paint Industries' Show Opens.
6:00 P. M.—Paint Industries' Show Closes.

Wednesday, November 17

10:00 A.M.—Meeting of Constituent Club Council Representatives.
12:15 P. M.—Meeting of Federation Committee Chairmen (1954-55).
2:00 P. M.—Meeting of Federation Council.
6:15 P. M.—Dinner.
8:00 P. M.—Meeting of Constituent Club Officers.

Thursday, November 18

Morning Session

10:30 A.M.—Invocation—Verne C. Bidlack.
Greetings from President Calvin J. Overmyer.
Welcome from Raymond C. Adams, Meetings Committee; Edward J. Murphy, Hotel Committee; Loren B. Odell, Paint Industries' Show Committee, and Clyde L. Smith, Program Committee.

10:45 A.M.—"Mechanisms of Paint Film Breakdown: I."
By Detroit Club.

11:05 A.M.—"Nomograph for Alkyd Resin Formulation."
By Northwestern Club.

11:20 A.M.—Report of the President—Calvin J. Overmyer.

11:35 A.M.—Address by Joseph F. Battley, president of the National Paint, Varnish & Lacquer Association.

11:45 A.M.—"Fume Control in the Paint and Varnish Industry."
By Dr. C. W. Selheimer, Illinois Institute of Technology.

Afternoon Session—Robert F. Hall Presiding

2:00 P. M.—"Calibration of The Sward Rocker."
By Los Angeles Club.

2:20 P. M.—"The Significance of the Tack-Free Test."
By New York Club.

2:45 P. M.—Keynote Address: "Skeptical Strangers or Faithful Friends?"
By Dr. John T. Rettaliata, president of Illinois Institute of Technology, Chicago, Ill.

3:45 P. M.—"A Stury of Pigment Dispersion: V. Behaviour of Toluidine Red."
By New York Club.

4:05 P. M.—"Research Related to Protective Coatings at the Utilization Research Branches."
By Dr. J. C. Cowan, of U. S. Dept. of Agriculture, Northern Utilization Branch, Peoria, Ill.

4:35 P. M.—Annual Business Meeting—Report of Elections.
7:00 P. M.—Past-Presidents' Dinner.
8:00 P. M.—Annual Contract Bridge Tournament.

Timetable

Friday, November 19

Morning Session—Howard G. Sholl Presiding

10:00 A.M.—"Paint Industry Literature Classification."
By Golden Gate Club.

10:20 A.M.—"Painting of Plaster Surfaces: II."
By Cleveland Club.

10:40 A.M.—"Observations on Some Testing Methods."
By Dr. H. A. Hampton, of Imperial Chemical Industries, Ltd., Manchester, England. Paper presented through sponsorship of Oil & Colour Chemists' Association, London, England.

11:20 A.M.—"Studies on the Formulation of Fire Retardant Paints."
By Baltimore Club.

11:40 A.M.—"Pakistan and the Paint Industry."
By Rahim Bux-Khan, of Buxley Paint Works, Karachi, Pakistan.

11:55 A.M.—"Correlations on the Color Aptitude Test."
By Dr. Forrest L. Dimmick, of U. S. Naval Medical Research Lab., U. S. Naval Submarine Base, New London, Conn.

Afternoon Session

2:00 P. M.—"Fume Control."
By Chicago Club.

2:20 P. M.—The Joseph J. Mattiello Lecture.
By Dr. James S. Long, Devoe & Raynolds Co., Inc.

3:20 P. M.—Report of Federation Educational Committee.
By Frederick M. Damitz, chairman.
Educational Session—
"Opportunities in the Paint Industry."
By William R. Barrett, of Rinshed-Mason Co., Detroit, Mich.

3:35 P. M.—"Toward a Better Knowledge of Oil Bodying."
By Dr. Gene Petit, director of the Paint and Varnish Laboratory, Bellevue, France. Paper presented through sponsorship of Federation of Technical Associations of the Paint and Printing Ink Industries in Continental Europe (FATIPEC).

3:55 P. M.—"Stress-Strain Properties of Films of Pigmented or Emulsified Alkyds."
By Dr. Wouter Bosch, North Dakota Agricultural College.

4:25 P. M.—"A Study of Primers for Ferrous Metals in an Atmospheric Exposure: VII."
By New England Club.

4:45 P. M.—"Systematic Study of Low Odor Alkyd Paints."
By CDIC Club.

6:30 P. M.—Annual Banquet and Dance.

Saturday, November 20

Hugh A. McConaghie Presiding

10:00 A.M.—Panel Discusion—"Polyvinyl Acetate Interior and Exterior Paints."

12:30 P. M.—Annual Meeting closes.

2:00 P. M.—Meeting of Federation Finance Committee.

Paint Industries' Show Exhibitors

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Anderson-Prichard Oil Corp.
Archer-Daniels-Midland Co.
Atlas Electric Devices Co.
Bakelite Co.
Baker Castor Oil Co.
Barrett Division
Bennett Industries, Inc.
Binney & Smith, Inc.
Bowser, Inc.
Brighton Copper Works, Inc.
Cabot, Godfrey L., Inc.
Carbide & Carbon Chemicals Co.
Carbola Chemical Co., Inc.
Carbon Dispersions, Inc.
Cargill, Inc.
Catalytic Combustion Corp.
Celanese Corp. of America
Coors Porcelain Co.
Cuno Engineering Corp.
Day, J. H. Co., Inc.
Dow Chemical Co.
du Pont, E. I. de Nemours & Co, Inc.
Eastman Chemical Products, Inc.
Epworth Manufacturing Co.
Firestone Plastics Co.
Gardner Laboratory, Inc.
General Electric Co.
Geuder, Paeschke & Frey Co.
Goodyear Tire & Rubber Co., Inc.
Harshaw Chemical Co.
Hercules Powder Co.
Hockmeyer, Herman & Co.
Kellogg, Spencer & Sons, Inc.
Kent Machine Works, Inc.
Kinetic Dispersion Corp.
Lacquer Information Center
Lehmann, J. M. Co., Inc.
Macbeth Corp.
Manufacturers Eng. & Equip. Corp.
Metals Disintegrating Co.
Mineral Pigments Corp.
Minerals & Chemicals Corp. of America
Monsanto Chemical Co.
Morehouse Industries
Naftone, Inc.
National Starch Products, Inc.
Neville Chemical Co.
Nopco Chemical Co.
Nuodex Products Co., Inc.
Pacific Vegetable Oil Corp.
Patterson Foundry & Machine Co.
Pennsylvania Industrial Chemicals Co.
R-B-H Dispersions
Reichhold Chemicals, Inc.
Rheem Manufacturing Co.
Rohm & Haas Co.
Ross, Charles & Son Co.
Ross & Rowe, Inc.
Sharples Chemicals, Inc.
Shell Chemical Corp.
Shell Oil Co.
Sherwin-Williams Co.
Sparkler Manufacturing Co.
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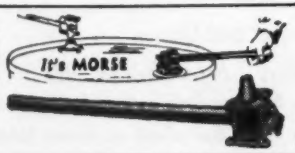

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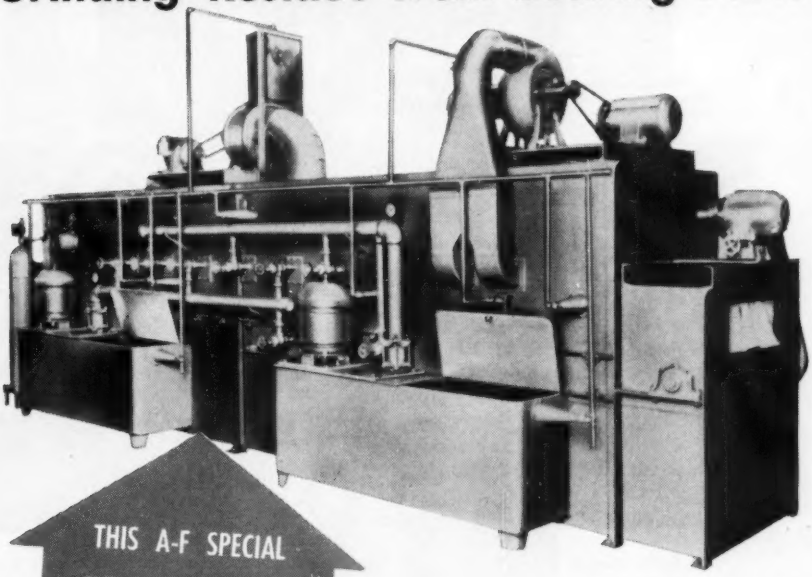

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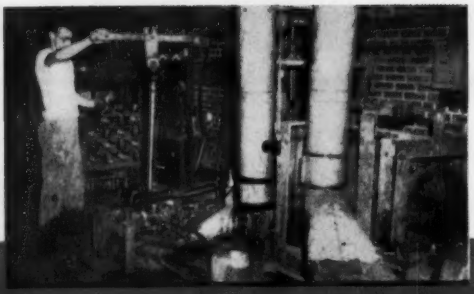

20-year old Chandeysson Motor Generator in service at Miller Electroplating, Inc., Evansville, Indiana

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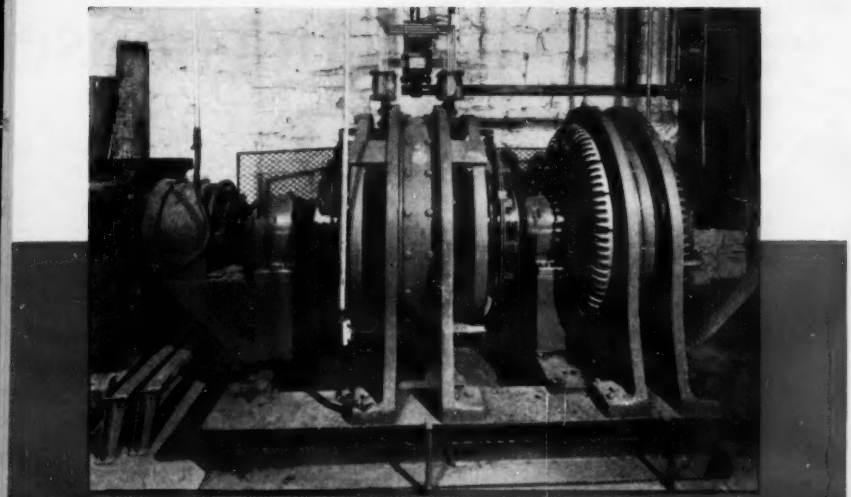
The fine results of an improved commercial policy, a new merchandising program, and improved manufacturing facilities make it possible for Chandeysson Electric Company to engage additional and supplemental distributors in certain parts of the country. If you are a qualified manufacturer's representative, we shall be glad to hear from you.



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agrees Miller Electroplating, Inc. of Evansville, Ind.

16 hours a day for 20 years carrying overloads of 20% to 25% with the only maintenance in all that time being new brushes . . . that's the Chandeysson record at the Miller Electroplating, Inc. It's not an unusual record — there are Chandeysson units still being used after 48 years of economical service!

Read Mr. Miller's actual letter —

"... We have three of your machines in operation in our plant. The last two being purchased after using the first one for over 20 years.

"Our first machine has been in use on the average of 16 hours a day. A great deal of this time, carrying an overload of from 20 to 25% of its rated capacity. During this time the only maintenance expense has been new brushes. It might be of interest for you to know that the commutator has not even been repaired during this time.

"We are indeed thoroughly sold on Chandeysson Plating Generators.

Very truly yours,
MILLER ELECTROPLATING, INC.

Paul E. Miller, Pres.

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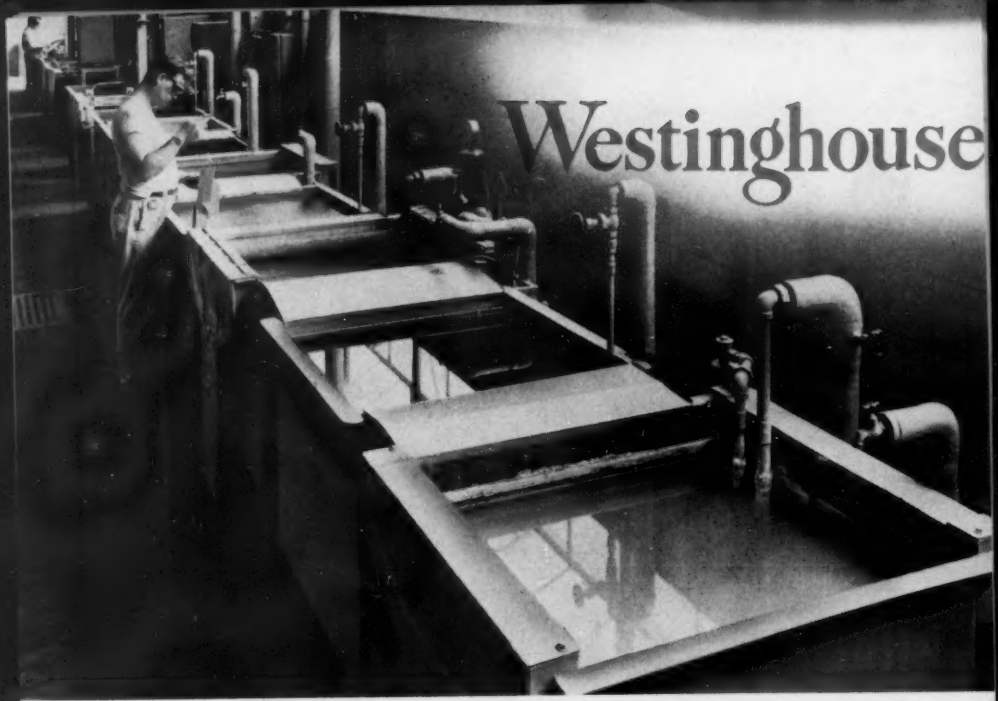
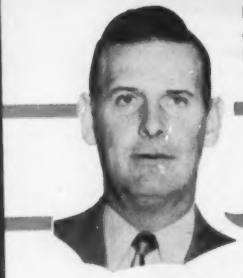


Fig. 1—Money line plates copper, silver and gold. Preparation tanks for copper plating are in the foreground. Each plating tank has its own rectifier. Plating and electrical equipment was designed and supplied by Hanson-Van Winkle-Munning Co., Matawan, N. J.



By F. B. DUGAN
Supervisor of Industrial & Manufacturing Engineering, Air Arm Division
Westinghouse Electric Corporation, Baltimore, Md.

NORMALLY production line methods are not applied too successfully to job-shop type operations, where work is handled manually and processing is rather varied. The problem was especially severe at the Air Arm plant where hundreds of different types of work had to be processed daily in any of 16 different ways.

Completed in the latter part of 1952, the Westinghouse plant is making electronic equipment for the military, including search and track radar for Navy night fighters.

Parts handled include small flat work, angles, chassis, and an assortment of screws, nuts and fixtures used in electronic equipment. Company platers may be called on in a typical day to finish a few thousand pieces of work by anodizing, electroplating, metal cleaning, buffing or lacquering. To complicate matters

Uses Time Study to Increase Output

Air Arm Plant Achieves Tight Control Over Diversified Small-Lot Plating Operation

these parts may be made of aluminum, magnesium or steel.

In laying out the plating room for this diversified operation, Westinghouse engineers worked closely with the technical men of Hanson-Van Winkle-Munning Co., Matawan, N. J. H-VW-M engineers recommended and specified equipment for the operation, while Westinghouse materials and standards engineers determined the various cycles required for the plating and cleaning operations.*

*For additional information on shop planning, see "Plan Your Finishing Facilities and Operations," by Thomas J. Menzel, PRODUCTS FINISHING, July, 1953.

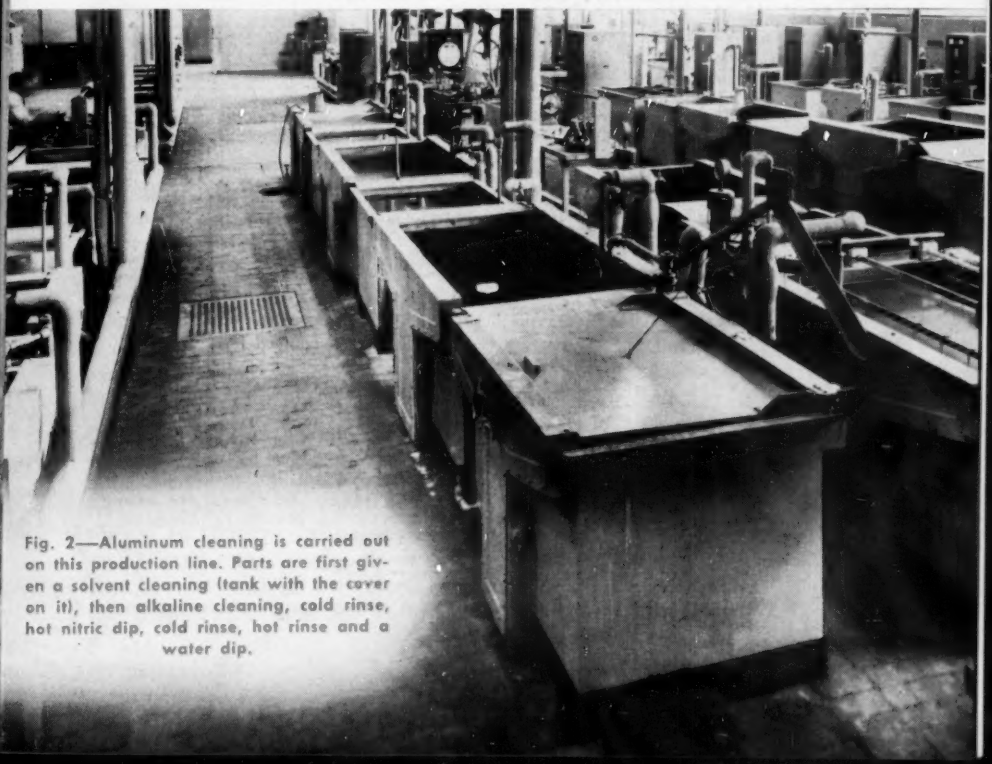


Fig. 2—Aluminum cleaning is carried out on this production line. Parts are first given a solvent cleaning (tank with the cover on it), then alkaline cleaning, cold rinse, hot nitric dip, cold rinse, hot rinse and a water dip.

After the shop was laid out, we studied individual operations to determine the best and fastest way to perform each one. Time studies were then made for each operation.

Time Studies for Plating

It has been a company policy that time studies be made of manufacturing operations for the purpose of standardizing methods, improving work place arrangements, and establishing a sound labor cost. They are used not only for measuring employee productivity, but also in setting a cost which will be realistic and as competitive as possible.

In our new plating installation at the Air Arm Division, the need for such results is more important today than ever, in order that the military services receive the most military equipment for the money spent.

All of the operations currently performed in our plating room are based on rigid process specifications which conform to military specifications. A great variety of plating and finishing processes are being performed with ease and efficiency, by reason of the flexibility of the layout and the carefully planned shop methods and techniques established through the time study program.

How Time Studies Have Paid Off

Among the most important contributions made possible through

No. 54 DATE 8/28/53
OPERATION LOAD RACK TO APPLY SULPHURIC ANODIZE FINISH
DEPARTMENT M50-502A OPERATOR E. SEVERS No. 2
EQUIPMENT WORK TABLE, HOOK TREE RACK, TOTE PAN
MACHINE TOOL NO. NONE
TOOLS, JIGS FIXTURES, ETC. STORAGE RODS PREVIOUSLY MOUNTED ON BENCH. ROOM TEMP. - 81° F. LIGHTING - 50 FT. CANDLES VENTILATION - NO FUMES, VAPOR
OBSERVED [illegible] APPROVED BY [illegible]
PART SKETCH WORK STATION

3/32" x 5/16" DIA. ALUMINUM

NOT TO SCALE

DWG. 1J29 SUB. 1
MOULD DIE STYLE ITEM 7
PATTERN INS. SPEC. L. SPEC SUB
PART DESCRIPTION SPACER - 3/32 x 5/16 DIA.
MATERIAL ALUMINUM

NO.	ELEMENTS	SMALL TOOL NOS. FEED SPEED, DEPTH OF CUT, ETC	ELEMENTAL TIME ALLOWED (DECIMAL LINK BROKEN SIDE)	OCCURRENCES PER PIECE OR CYCLE	TOTAL TIME ALLOWED
1	PICKUP FROM POSITION ON ROD ON BENCH	22 PCS./RACK	.00074	1/22	.00003
2	GRASP SPACERS FROM PAN		.0085	1/2	.00006
3	INSERT 1 SPACER ON RACK		.00083	1	.00083
4	PLACE RACK ASIDE ON ROD AFTER LOADING	22 PCS./RACK	.0098	1/22	.00004

TIME ALLOWED, SET UP NONE EACH PIECE .0010 HRS. TOTAL .00095

REMARKS: SHOP ORDER DM-879
22 SPACERS LOADED PER RACK
ELEMENT 2 - ALLOW 14 PIECES PER GRASP.
NO SETUP REQ'D. - MATERIAL SUPPLIED BY MFG. HANDLER.

OBSERVATION SHEET
WESTINGHOUSE FORM 3023
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Fig. 3—Time study sheet shows how each element of a plating operation is segregated and analyzed.

time study is the ease of operator instruction. Studies specify in detail the sequence of elements which are required to produce a plated or finished part in accordance with the process specification.

Such factors as length of process cycle, type of handling device, method of stacking and transporting are covered by the time study analysis. By recording this information on time study analysis sheets (Fig. 3), it is easy to duplicate the required conditions when instructing new operators, and thus assure that quality work results.

This assurance that factory practices conform in all respects to the requirements of the process is an important assurance of high grade workmanship. Our percentage of rejected work in the plating and finishing process is virtually zero.

Approximately 75 actual time studies have been made. Each element is carefully segregated for analysis. It is apparent that process cycle time is being utilized to the fullest extent and that delays resulting from the cycle are held to a minimum.

Problems Solved

The obstacles with which our Industrial and Manufacturing Engineering people were faced in setting up the operations and making time study observations were nearly always attributable to the problems of establishing a sound method. Varying production loads and the need for maintaining higher standards of quality than is conventionally required in commercial work necessitated extremely thorough instruction of operators and required making many trial runs before acceptable methods could be established and followed.

Although a seemingly simple methods problem, the task of handling the wide variety of sizes and shapes of piece parts made it necessary to provide a simple, universal type of rack.

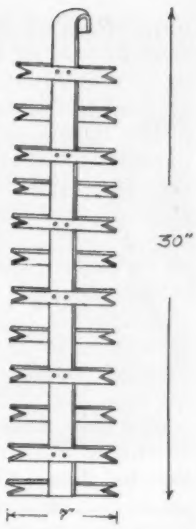

Fig. 4 — Homemade rack was put together by Westinghouse Air Arm from scrap pieces of aluminum.

At Air Arm it was found that a simple rack (Fig. 4), approximately 30 inches long with a series of rungs fastened to it, could be easily made from scrap aluminum.

Another obstacle in establishing and administering methods is the problem of specifying exactly which tanks are to be employed in the plating or finishing sequences and the most efficient route to follow in performing the work. This has been overcome to a great extent by employing layout sketches on which the specified route and tanks employed are clearly indicated. This information is of value not only in instructing operators but also in confirming the validity of the time study data.

Planning the Plating Room

In laying out the plating room, floor space was first divided into four general areas: racking, plating,

unracking and buffing. The entire shop was set off in a separate room to prevent interference from general plant operation.

The buffing and polishing operations then were confined to a separate room within the shop. Also set off within the plating area, and enclosed in wire cages, were the shop motor-generator sets, and the chemical laboratory.

To permit the manual handling operations to proceed with a minimum of jumping around, the plating area was set up in six parallel production lines (Fig. 5). Dual anodizing was to be carried out on the first line (Fig. 6); magnesium cleaning and processing, and coloring on the second; aluminum cleaning on the third (Fig. 2); tin, zinc and cadmium plating on the fourth (Fig. 7); nickel and chromium on the fifth; and copper, silver and gold on the sixth (Fig. 1).

The layout of the shop was planned so work would be taken in at one end of the plating room, racked, processed, unracked, and finished work delivered at the other end. Individual operations were also set up to proceed in one direction. Cleaning of aluminum, for example, involves seven baths: solvent rinse, alkaline cleaning, cold rinse, hot rinse and a water dip. The tanks

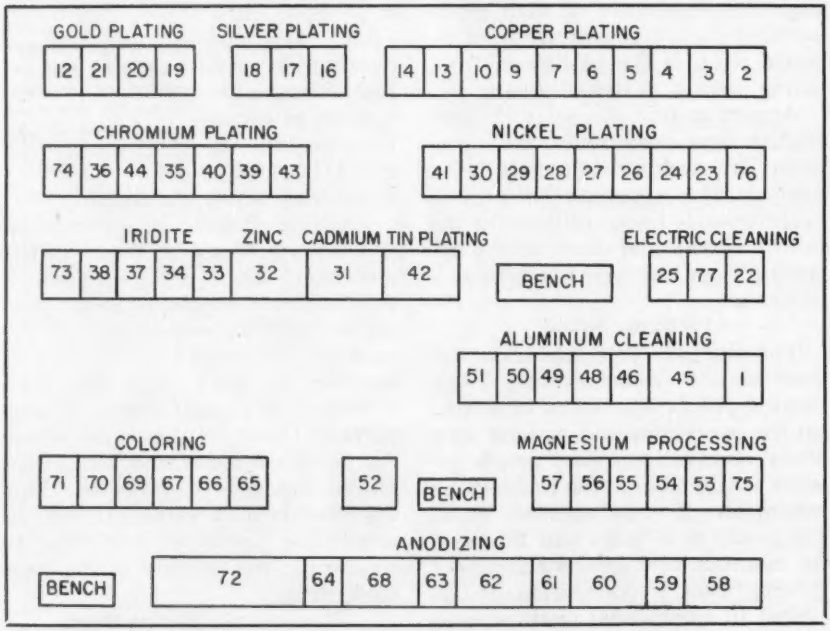

Fig. 5—Orderly layout enables Westinghouse Air Arm to clean, plate and anodize a few thousand parts daily on these six production lines. Sixteen different metal finishing operations are performed in the shop.

Fig. 6—Dual anodizing is carried out on the first processing line at the left; magnesium cleaning, on the second line (front); coloring on the second line (rear). Operations proceed from front to rear. H-VW-M d.c. generators, located behind the wire cage at left, supply current for anodizing.

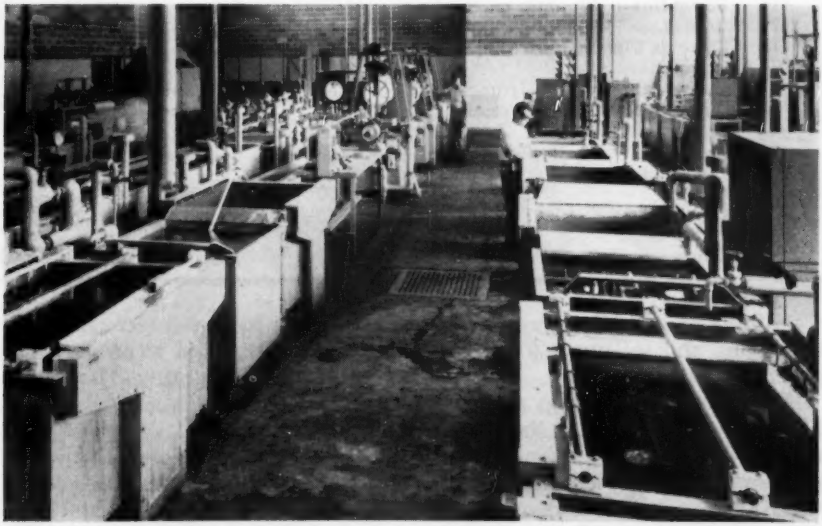

Fig. 7—Tin, cadmium and zinc barrel plating is done in the H-VW-M barrels on the production line at the left. First three tanks are for electrocleaning, cold rinse and pickle. Line on the right handles electrocleaning, nickel and chromium plating.
(Illustrations courtesy Hanson-Van Winkle-Munning Co., Matawan, N. J.)

Table I

TANK NUMBER	PROCESS	SOLUTION	CAPACITY	TIME	TEMPERATURE
1	Solvent	Lacquer Thinner	500 gal.	1-3 min.	room
2	Alkaline Cleaner	Patent	300	½-3 min.	
3	Cold Rinse				
4	Pickle	Sulfuric	190	5 min.	175 deg. F.
5	Cold Rinse				
6	Nitric Acid	HNO_3	190	1-2 min.	200 deg. F.
7	Cold Rinse				
9	Zinc Dip	Zinc	190	1-3 min.	room
10	Cold Rinse				
12	Strip				
13	Copper Plate		190	3 min.	100-110 deg. F.
14	Cold Rinse				
15	Copper Strike	Cyanide	140	10 sec.	room
16	Silver Strike	Cyanide	140	10 sec.	room
17	Silver Plate	Cyanide	130	15 sec.	room
18	Cold Rinse				
19	Gold Plate	Cyanide	140	flash	150 deg. F.
20	Gold Reclaim				
21	Hot Rinse				
22	Electrocleaner		500	1-3 min.	180-200 deg. F.
23	Electrocleaner		300	1-3 min.	180-200 deg. F.
24	Cold Rinse				
25	Pickle				
26	Pickle				
27	Bright Dip				
28	Cold Rinse				
29	Cyanide Dip	NACN	250	dip	
30	Cold Rinse				
31	Cadmium Plate	Cyanide	250	15 min.	
32	Zinc Plate	Cyanide	190	20 min.	
33	Cold Rinse				
34	Iridite Dip	Acid	190	20 sec.	
35	Cold Rinse				
36	Caustic	Caustic	190	5 sec.	
37	Cold Rinse				
38	Warm Rinse				
39	Chromium Plate	Acid	190	variable	122-131 deg. F.

containing these baths were arranged in line and set up to follow the general direction of flow.

As far as possible, other processes likewise were arranged in line. When this could not be conveniently done, process rows were located side by side. Thus, coloring and anodizing are carried out on adjacent processing lines, as are copper and nickel plating.

Aluminum cleaning prepares parts prior to spot welding, but is also frequently used to prepare aluminum work for plating. The aluminum cleaning line is centrally located for convenience.

Contributing to overall quality control are the temperature-control equipment and the individual electrical controls for the plating tanks. All heated tanks have self-operating temperature control regulators. Each plating tank has its own recti-

Table I—Continued

TANK NUMBER	PROCESS	SOLUTION	CAPACITY	TIME	TEMPERATURE
40	Chromium Reclaim				
41	Nickel Plate	High pH	250	1 hr.	room
42	Tin Plate	Alkaline stannate	250	15 min.	160 deg. F.
43	Cold Rinse				
44	Hot Rinse				
45	Alkaline Cleaner				
46	Cold Rinse				
48	Hot Nitric Acid				
49	Cold Rinse				
50	Hot Rinse				
51	Water Dip				
52	Lacquer Spray				
53	Pickle	HF	190	5-15 min.	room
54	Cold Rinse				
55	Seal	Dichromate	250	30 min.	boiling
56	Cold Rinse				
57	Hot Rinse				
58	Alkaline Cleaner		300	½-5 min.	160-180 deg. F.
59	Cold Rinse				
60	Chromic Acid		410	½-1 hr.	95 deg. F.
61	Cold Rinse				
62	Sulfuric Acid				
63	Cold Rinse				
64	Gray Dye		300	15-30 min.	140-160 deg. F.
65	Black Dye		300	15-30 min.	140-160 deg. F.
66	Green Dye		300	15-30 min.	140-160 deg. F.
67	Setting Tank				
68	Hot Seal				
69	Hot Seal				
70	Strip				
71	Cold Rinse				
72	Drying Table				
73	Strip	HCl			
74	Strip				
75	Alkaline Cleaner				
76	Solvent Cleaner				
77	Cold Rinse				

fier and control panel. Capacities of these H-VW-M selenium rectifiers range from 150 amperes for the gold plating bath to 500 amperes for the zinc bath. The sulfuric and chromic acid anodizing tanks have separate generators.

Other features of the plating shop include:

1. Down draft exhaust. Fumes from plating baths are carried out ducts located on the sides of the tanks, through a trench set in the floor and blown out to the atmosphere. This 3-foot wide trench is made of wood covered with an acid-resistant material and lined with a tar compound. The trench system is so constructed that trenches run parallel to the plating lines and lead into a central receiving trench.

2. All rinse tanks are the spray-dunk type with fresh water continuously flowing in at the bottom.

3. The two H-VW-M generators supplying current for the anodizing operations are rated at 300 amperes, 40 volts; 750 amperes, 25 volts.

4. H-VW-M Mercil type barrels are used for the tin, cadmium and zinc plating. Their overall lengths are six feet. They are 40 inches wide, made of transparent plastic and have cast iron assemblies.

Table I provides details as to solutions, processes, and time cycles.

Facts Learned From the Operation

An obvious advantage which we have gained is the use of virtually the entire surface area in the plating and finishing tanks. This is possible because down draft evacuation has been used. Hoods, which often interfere with efficient handling of parts, have been eliminated. Where large batches can be handled in an orderly sequence, conveyor lines could be readily set up so that each tank could be reached with a simple mechanical arrangement.

The preparation of operator instruction sheets from time study records has proved very helpful, particularly when starting our operation because there were few trained finishers in our area.

Our Materials and Standards and Engineering Departments have supplied a valuable service in writing

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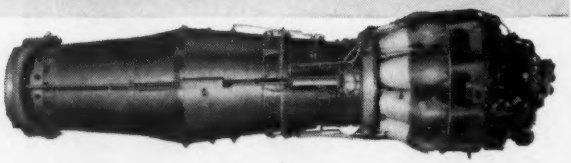

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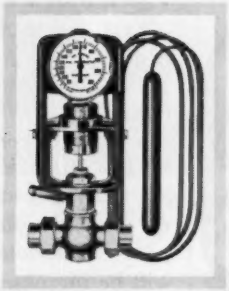
***Too high a temperature* can result in:**

1. Burned deposit
2. Increase in carbonates
3. Loss in throwing power
4. Roughness
5. Breakdown of addition agents
6. Rapid cyanide breakdown
7. Pitting
8. Excessive gassing and fumes

***Too low a temperature* can result in:**

1. Anode polarization
2. Spongy deposit
3. Dark plate
4. Restricted current density
5. Lack of color uniformity



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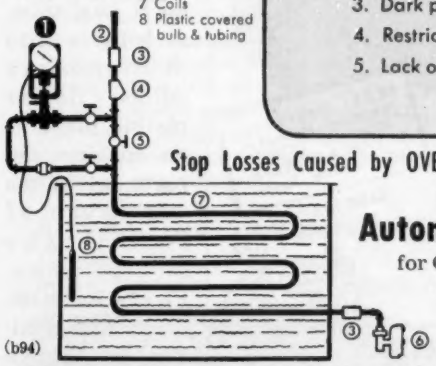

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up process specifications in a language suited to factory practice. Nothing is more important than recognizing that the operator, himself, is the key to a successful plating and finishing operation, and no amount of policing or imposed controls will assure good results unless the operator has first been told the proper way in which to work.

Effect of Plating Thickness on Screw Thread Dimensions

ONE of the seeming oddities when a screw thread is electroplated is that the pitch diameter (the outside diameter less a single depth of the thread) is increased four times the thickness of the metal deposit. For instance, if 0.0003 inch of plating is applied to a thread, that is, 0.0003 inch on one side of the diameter and 0.0003 inch on the other, the pitch diameter will be increased by 0.0012 inch. Standard Pressed Steel Co., Jenkintown, Pa., has known this for a long time, as befits a firm which operates a million-dollar plating plant as an in-line department in the manufacture of its Unbrako socket screws, Flexloc locknuts, aircraft specialties and Hallowell shop equipment. But the Jenkintown firm discovered that

Get LOW COST, HIGH PRODUCTION in your metal cleaning operations with the MANPRO M-121 VAPOR-SPRAY DEGREASER

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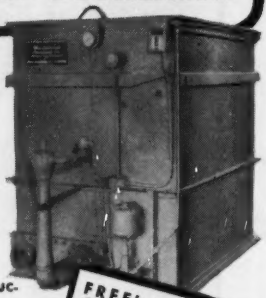

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PRODUCTION INCREASED 150% with DESPATCH FINISHING SYSTEM

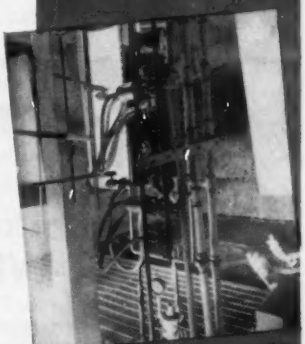
5-stage washer includes: alkali cleaner, hot water rinse, zinc phosphatizing, cold water rinse, chromic phosphoric acid rinse.

Entrance, right; exit, left to 2-pass dry-off oven. Time: 8 min. at 300°F.

Amana World's Largest Manufacturer of Food Freezers Expands

As part of a major expansion program Amana Refrigeration, Inc., Amana, Iowa, installed a DESPATCH 2-coat, 2-bake electrostatic paint finishing system with a capacity of 400 freezers and 200 room air conditioners on an 8-hour shift. The new streamlined system is credited with increasing Amana's production by 150%, has greatly improved finish quality and has achieved substantial paint savings through more efficient paint application and paint reclamation processes.

Ware travels on a 27-foot continuous conveyor through 5-stage washer, dry-off oven, prime and finish staggered electrostatic spray booths, prime and finish touch up booths, prime and finish multiple pass bake ovens and inspection area to three assembly lines.



One of 4 electrostatic spray booths. Booths spray 2 passes on their respective sides.

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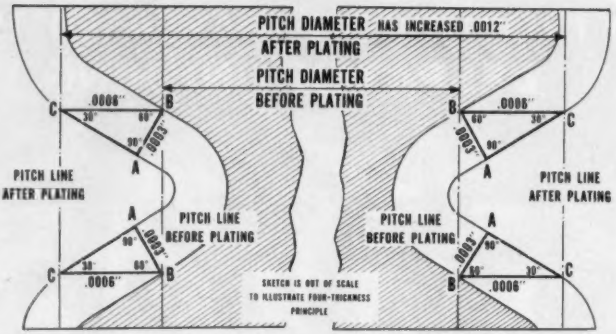
many other people were unaware of the apparent curiosity. To explain it, SPS put together the accompanying cross-sectional view of a thread—a view somewhat out of scale to illustrate the four-thickness principle. A plating thickness of 0.0003 inch increases the pitch diameter 0.0012, SPS points out, because—in the triangles ABC, the plating thickness of 0.0003 inch is represented by the line AB. Now, these triangles have angles of 30, 60 and 90 degrees and thus the line CB is twice AB, or 0.0006 inch. The increase CB occurs at both sides of the pitch diameter. Therefore, the growth in the pitch diameter is CB plus CB, or 0.0012 inch—four times the plating thickness. It is vital to make allowances for this in producing threaded fasteners so that after plating they will be within tolerances. If the pitch diameter is too large, the screw won't go into a hole tapped to receive it. SPS prepared the sketch to show its customers—and its own management—that plating was not as simple as it appeared to be, that forming a thread before plating so that it would be precisely within tolerances after plating is more complicated than it might seem at first glance.



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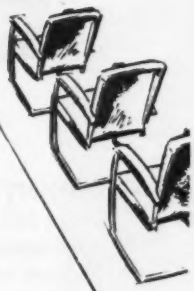

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Hamilton gas-fired clothes dryer

CURRENTLY of great interest among labor-saving household appliances is the gas-fired laundry dryer. Following a long line of other appliances which started out as novelties and within a short time became necessities—such as the streamlined automatic gas ranges, refrigerators, washing machines, dish washers—is the laundry dryer. Sales of this comparatively new appliance reached the amazing annual total of over 170,000 units.

In the manufacture of these appliances the same quality of materials and precision workmanship will be found as in other household appliances which are built to last many years and give maximum satisfactory performance.

One of the leaders in the field of gas-fired laundry dryers is the Hamilton Manufacturing Company, Two Rivers, Wisconsin. This company, established in 1880, makes a variety of products including wood and steel laboratory furniture for scientific uses, wood and metal furniture for schools and libraries, a line of dental furniture, drafting equipment, and a surgical equipment line.

Wood and steel medical furniture, juvenile furniture, architects' and drafting room furniture are made in the completely equipped modern woodworking and metal fabricating shops. With these adequate facilities it was but a short step to pioneer and organize the production of a laundry dryer.

By ARTHUR Q. SMITH
American Gas Association
New York

Finishing Hamilton Clothes Dryers

The existing metal fabricating facilities were supplied with the necessary tools to stamp out various parts of the dryer (see Figs. 1 and 2). In order to meet the heavy production schedule and present day demands for clothes dryers, new facilities were required in the metal finishing department. This included a modern semiautomatic paint spraying section, a gas-fired paint drying and curing oven as a part of the general expansion and modernization program of the entire plant.

These extensive finishing facilities are housed in a completely new steel structure, 221 feet long by 53 feet

Fig. 1—Hamilton clothes dryers start out in the metal stamping shop where sheet steel is cut to size for the several component parts.

wide, which has been added to the upper floor of the steel fabricating plant. More than a mile of automatic conveyors, in three separate lines, are used in moving fabricated steel parts from the press and welding operations through the new finishing plant and from there to several assembling and trimming departments.

Three basic steps are involved in the new fabricating and finishing operations. These are: (1) metal preparation, (2) metal finishing, and (3) high temperature baking of the final finish. Three entirely separate conveyor lines, originating from different areas of the steel fabricating plant, pass through all stages of the finishing operations. This lends considerable flexibility in that fabricated metal parts can be hung on any one line or on all three of the conveyor lines so that every metal product can be subjected to the multiphase finishing process.

One of the most important steps in metal finishing is the preparation prior to paint spraying. Each metal part or unit is first subjected to a phosphatizing treatment which chemically cleans, and creates a chemical film on the part for added corrosion resistance, ensuring a perfect bond with the final finish. A total of 17 minutes is required for each item to pass through this complete phosphatizing process (see Fig. 3) which involves six separate stages. First, each item is subjected to a chemical wash followed by two separate hot water rinses to assure that each metal part will be chemically clean. Next follows a phosphatizing treatment which converts the steel surface into a zinc-iron-phosphate complex which slightly etches the metal surface and deposits a surface film assuring a perfect bond with the final finish. Then a cold water rinse and a chromic acid rinse removes any traces of chemical salts which may affect the finish coat. Following this treatment, the items pass through a dry-off area where warm air at high velocity assures that the treated

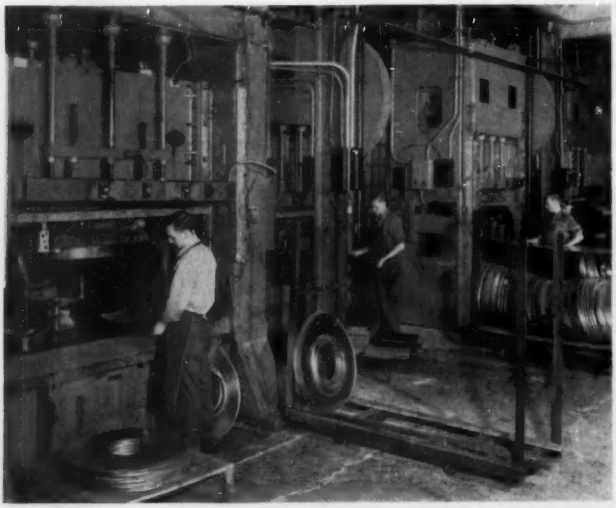

Fig. 2—The familiar round inner working part goes through several stamping operations before it reaches its final form.

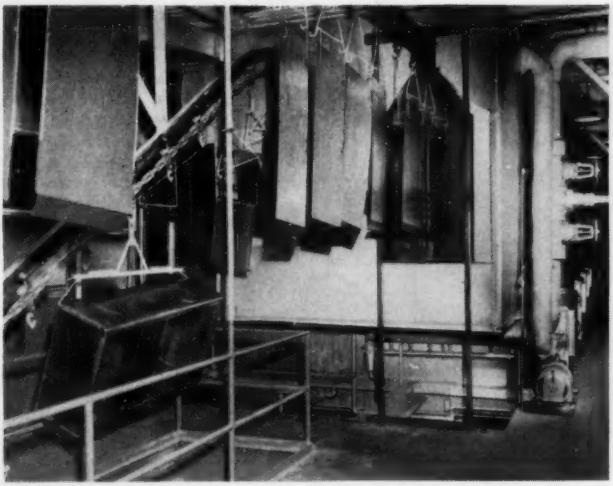

Fig. 3 — Three conveyor lines from the fabricating shops converge on the phosphatizing unit which prepares the metal surfaces for a finish paint coat.

items will be bone dry before the application of a finish coat.

The Hamilton metal treating equipment is unique because this installation represents the first time that three separate conveyor lines have been arranged to travel simultaneously through a phosphatizing process. This has demanded the use of tanks and associated equipment of much greater size than anything constructed heretofore.

The second phase of the finishing process is the application of the finish itself. These facilities are in the new structure which was added as another floor of the steel fabricating plant. Two separate types of spray equipment are provided. Two of the three conveyor lines go through

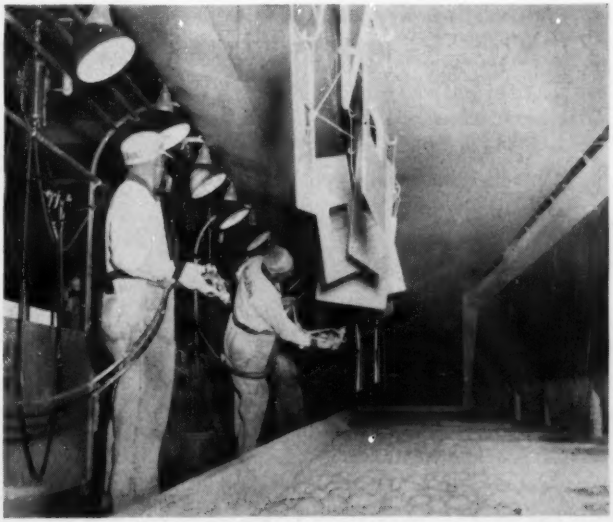

Fig. 4—Some dryer parts are hand sprayed as they proceed along the conveyor system. This spray booth has a water wall to pick up paint spray and otherwise protect the operators.

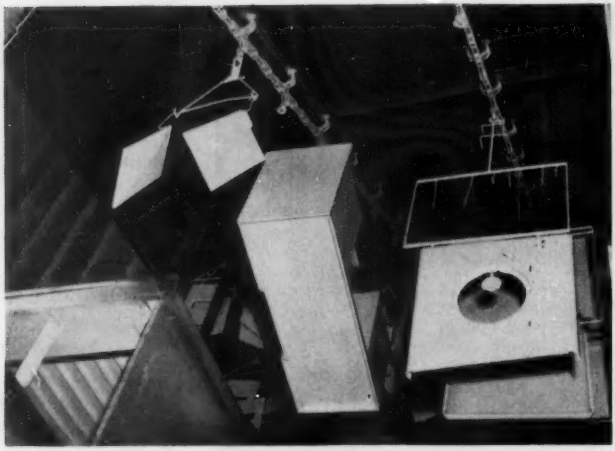

Fig. 5—After painting, the dryer parts move along the same conveyor line through the gas-fired drying oven where at a temperature of 280 deg. F., circulating hot air dries and cures the paint finish.

manual spray booths providing a battery of 12 spray positions (see Fig. 4). An elaborate system involving a water curtain removes paint fumes and a high capacity exhaust and air conditioning system assure that tempered, dust free air is maintained through every stage of the finishing operation. The manual spray application is primarily used for large units and formed or welded parts to assure that complete paint coverage is obtained on all areas of the items to be finished.

The third of the three conveyor lines goes through a series of automatic spray booths in which electrostatic devices are used.

After spraying, all parts are carried by the conveyors to the direct fired gas ovens for heat treatment (see Fig. 5). These thermostatically-controlled ovens are maintained at just the proper temperatures and air

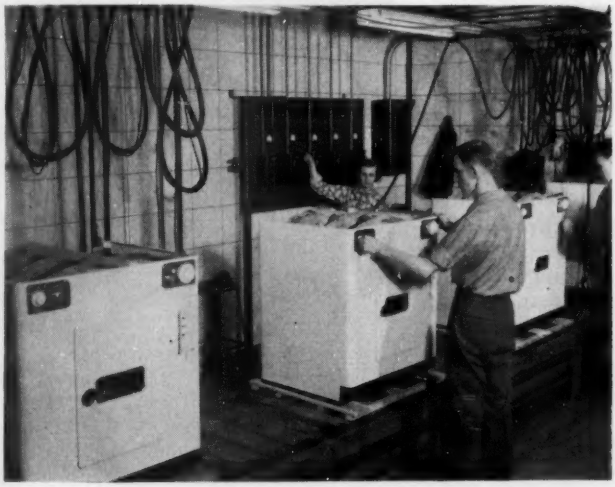

Fig. 6 — After final assembly, each dryer is put through a series of tests to insure its perfect operation when it reaches the home customer. *(Photos courtesy Hamilton Mfg. Co., Two Rivers, Wis.)*

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Vertical Rotor Type DUST and FUME *Eliminators*

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Economical COLLECTION *and* ELIMINATION *Efficiency*

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The Phillips cross-rod conveyorized degreaser installed at Raytheon's receiving tube division.

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In Canada Phillips equipment is manufactured under license by Williams Tool Corp. of Canada, Ltd., Brantford, Ont.

flow to assure good bond and luster to the finished parts. After processing in the ovens, the finished parts are conveyed to various assembly and trimming departments for completion.

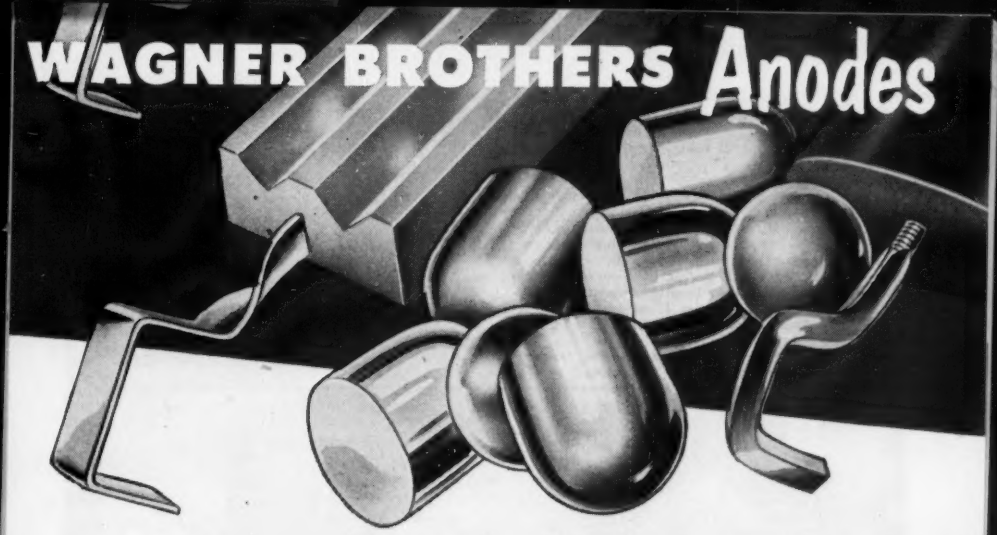
The finishing process requires about 45 minutes for cleaning and spraying and an additional 45 minutes in the bake ovens. The conveyor lines move at a uniform speed of 10 feet per minute and the complete cycle for the longest line, from the loading station until the empty racks return from the assembly department, consumes a time of approximately four hours.

Here are some interesting facts showing the magnitude of the complete installation. The 170 foot long phosphatizing machine consumes 7,000 pounds of steam per hour at 5 pounds pressure, while the dry-off oven uses 2,000 pounds of steam per hour at 100 pounds pressure. Five separate blowers supply clean, filtered air at the rate of 144,000 cubic feet per minute. In the winter, at -20 deg. F., this air conditioning system will use 18,000 pounds of steam per hour at three pounds pressure.

The paint baking oven is designed to maintain temperatures as high as 375 deg. F., but, at present conveyor operating speeds, a temperature of 280 deg. F. is employed. Three thousand cubic feet of natural gas are consumed per hour with a rated hourly input of 3,000,000 Btu. The oven has a separate air circulating system supplying 37,000 cubic feet of fresh air per minute.

For the operation of the complete finishing system, 31 separate motors are used with a total requirement of 250 horse power.

WAGNER BROTHERS Anodes



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COPPER	Flat-Top*, smooth-surfaced, free from dirt, silicon and oxides; greater weight and increased predictability. Wagner Brothers' Iso-Cast Oval, cast from electrolytic copper under rigid controls. Lectrocop†, electrolytic slab, various dimensions.
ZINC	Cast by Wagner's exclusive method in the original Flat-Top* form to provide a smooth surface free of contamination, easily identifiable because of its distinctive form. Also available in Wagner Brothers' Iso-Cast Ovals.
TIN	Available in any length in our corrugated Wagner Brothers' Iso-Cast form with locked-in steel contact hook, in standard balls and Iso-Cast Ovals. We also produce Tin-Lead (15% tin, 85% lead) and Tin-Zinc (80% tin, 20% zinc), same forms.
CADMIUM	Available in standard ball form.
BRASS	Various commercial alloys of zinc and copper in both Flat-Top* and Wagner Brothers' Iso-Cast forms.

Wagner Anodes are available in principal areas. Phone or write today for information.

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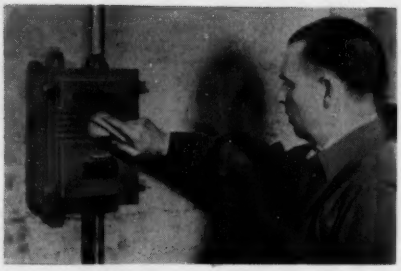
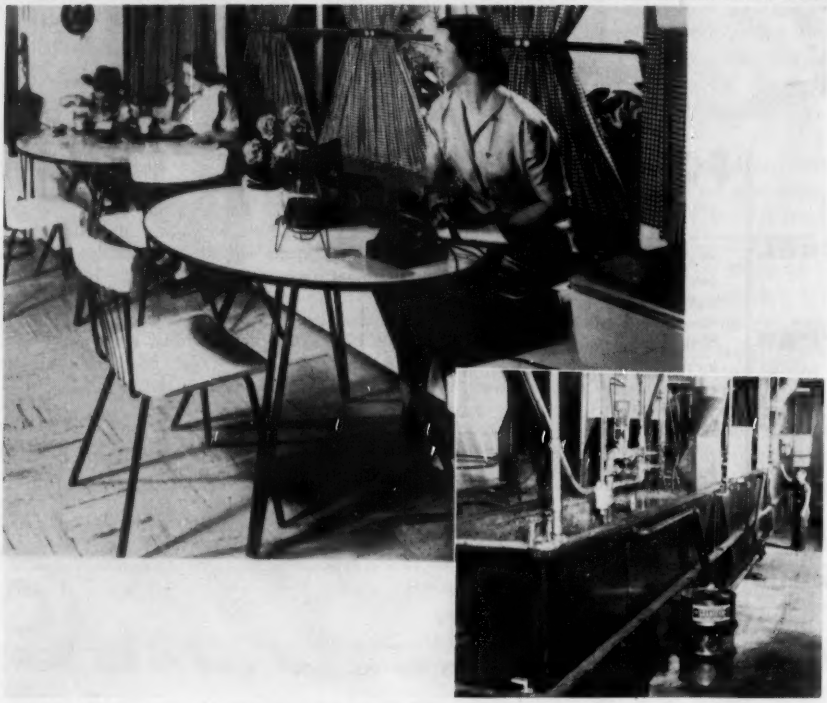
Lead-plated, sheet-steel enclosures for safety switches and circuit breakers are being produced by the Trumbull Components Department of General Electric of Plainville, Connecticut. According to F. M. Oglee, Trumbull Marketing Manager, these new enclosures are designed for outdoor use and other applications.

These new enclosures are recommended for applications where humid, dust-laden and corrosive atmospheres prevail, such as those characteristic of steel, paper and cement mills, dairies, breweries and chemical plants. According to test data, the inert lead coating effectively resists the corrosive effect of acid, alkali and salt spray.

(Photo courtesy Trumbull Components Department, General Electric Company.)



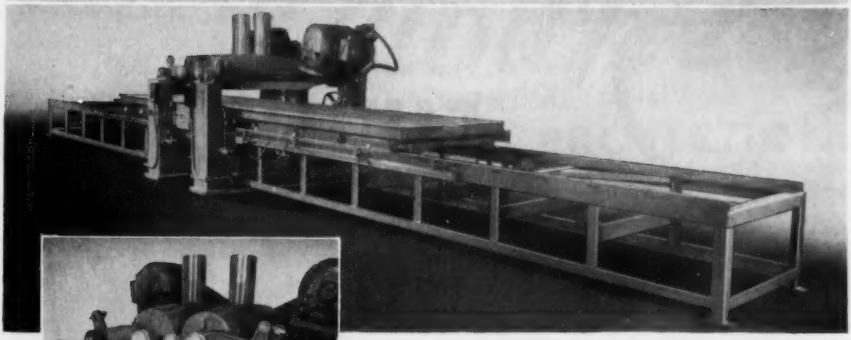


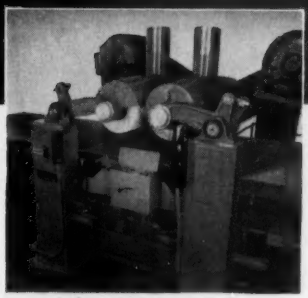
NOT only beautiful but also practical, DAYSTROM furniture is built for a lifetime of rugged service. Here's one reason why: In the compact, well-designed mechanized dip unit shown above, steel legs for chairs and tables, and other components are Granodized with American Chemical Paint Company's "Granodine." This protective pre-paint treatment bonds Daystrom's exclusive Coloramic finishes firmly to sturdy steel.

The "Granodine" coating is composed of millions of tiny, tightly interlaced non-metallic, zinc phosphate crystals that anchor the specially formulated Daystrom paint finishes—Black and Golden Bronze—to metal. As a result, optimum paint adhesion and finish durability make this furniture highly resistant to scratching, scuffing and kicking.

(Photos courtesy American Chemical Paint Company, Ambler, Pa.)

Cut Time! Cut Finishing Costs! with CENTRAL *Tandem Roll* POLISHING MACHINES





FEATURES

1. Central Push Button Control
2. Electro-Hydraulic Contour Control
3. Tandem Rolls for faster cutting and finishing
4. Two operations at one work set-up
5. Adjustable stroke, 2" to full length capacity
6. Machines made to any length or width

Here's the solution to any polishing problem involving sheets, plates, rods, tubing, extrusions and many small items which may or may not require contour control. Tandem rolls provide for cut-down and finishing at one work set-up.

Many pieces such as electric, gas or oil range tops with side concave or convex moulding can be handled by incorporating auxiliary polishing rolls. These machines are rugged steel fabrications and powered with motors of ample capacity. They are electro-hydraulic or hydraulic controlled from a central operator's station, simple to operate, safe, effective and highly efficient.

These new Central Machines are — to the best of our knowledge the ultimate in performance, economy and low initial cost.

Firms operating these polishing machines over the past three years tell us our H-M Series Machines have paid for themselves in 8 to 12 months' time.

Full information and specifications on request. Send us samples or tell us what you want to polish.

Also made in Single Roll Horizontal Series and Double Roll Vertical Series

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Spotlighting FINISHING Progress

Chrome Plating of Gun Bores

THE interior surfaces of 90-millimeter tank cannon, 15 feet in length, are being hard chromium plated to improve gun performance. In a recent article in "Machinery," C. E. McDowell of the Oldsmobile Div., G. M. C., has described some of the unusual and interesting features of this job.

A hard chromium electrodeposit in tank cannon bores improves service life. Decreased bore wear results in improved accuracy and more consistent gun service, as well as increased gun life. Other desirable properties of the chrome plate are its low coefficient of friction and resistance to seizure, and its resistance to corrosion by the hot gases.

The chromium deposit is also used to bring the finished gun bore to its uniform standard size, regardless of minor variations in the preliminary machining operation. This is accomplished by regulating the time and rate of deposition, and sometimes by a special honing operation on the chromium surface.

Preliminary Preparation for Plating

The alloy steel gun tubes are pro-

By Dr. C. Fred Gurnham,
Head, Dept. of Chemical Engineering,
Michigan State College

•

A Monthly Digest of Current Technical Progress Indicating Significant Trends and Developments in the Finishing Industry

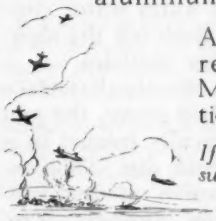
USN Grumman COUGARS ARE Alodized

WITH "ALODINE"®

FOR EXTRA PROTECTION

Navy LCdr. Francis X. Brady with Cougar, in which he broke transcontinental flight record April 1st, 1954—3 hours, 46 minutes, 49 seconds.

The terrific speed of the GRUMMAN Cougar and its severe service requirements make surface protection of its aluminum components a "must." "Alodine" provides a durable paint bond, in addition, it protects the aluminum against corrosion, especially when exposed to sea air.



Alodizing meets the requirements of Military Specification MIL-C-5541.

If it's aluminum, be sure it's Alodized.

Snow-covered Panther Jets on flight deck of USS Philippine Sea prior to take-off.

Panther Jets on runways.

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Cleans FASTER
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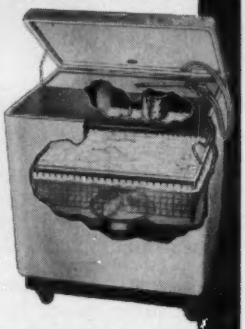

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duced at government arsenals, by casting or forging followed by heat treatment. At the finishing plant, they are machined and the rifling grooves produced by a broaching operation. Inspections are made by a special instrument, the Borescope, which permits both visual examination and electronic gaging throughout the 15-foot length. After machining and inspection, the tubes are cleaned by means of rags saturated with a petroleum solvent.

The machined tubes are next given a surface treatment known as "Liquid Honing," a process developed by Vapor Blast Manufacturing Company. In this operation, a suspension of finely divided abrasive grit in rust-inhibited water is discharged against the metal by means of special nozzles. The treatment removes tool marks and other irregularities in the surface, including microscopic feather edges in the rifling. Treated surfaces have a smooth matte finish, resembling a fine chemical etch, and provide an excellent base for chromium deposition. Successive cold and warm water rinsings are used to flush out the abrasive grit and other particles.

After the mechanical surface treatment described above, the gun barrels are chemically treated in a warm chromic acid dip. This ensures good adhesion of the subsequent chromium deposit. The chemical dip includes an immersion of several minutes duration, with two or more draining and re-dipping cycles.

Attachment of Electrodes

Following the preliminary preparation operations just described, the gun barrel is hoisted to a vertical

STEVENS AUTOMATIC BARREL MACHINE...

BRINGS LOWER COSTS TO ST. LOUIS JOB PLATER

To lead competition in price and quality, many smart job platers are following the larger industries in selecting Stevens automatic equipment.

In 1953, Homer A. Doerr & Son, St. Louis, Mo., 30-year-old job plating firm, installed a Stevens Full Automatic Barrel Plating machine. Now, after more than a year of operation, Mr. Doerr reports:

"Although we operate as a job plater and handle an extremely diversified group of parts daily, our Stevens Automatic Barrel Plater gives us more uniform results, to close tolerances, at higher production by far than with equipment formerly used. Labor is no longer our major cost factor and we are revising our maintenance estimate downward."

You can save in your job plating operations too. Call your Stevens representative today or write direct to Frederic B. Stevens, Inc., Detroit 16, Michigan.

Bookings for the showing in your plant of a twenty-six minute, 16-mm. sound film featuring the famed Stevens Automatic Barrel, will gladly be arranged.

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We use Lacquer Thinner on:
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We want it to dry:
☐ Fast ☐ Slow ☐ Medium

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position, muzzle end up, for the remaining operations including plating. In a vertical position, the internal electrode can be properly positioned in the tube; this would not be possible in a horizontal position because the 15-foot electrode would sag under its own weight. The electrode assembly is screwed onto the muzzle end of the gun, and the electrode is positioned at the breech end by a special plastic disc.

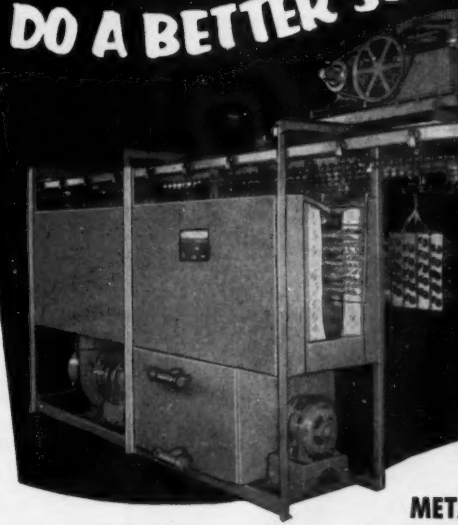
The structural portions of the electrode assembly are constructed of steel, while the current carrying members are of aluminum. Aluminum is preferred to copper because of its better resistance to corrosive attack by the chromium plating solution. The electrode itself is of steel with a heavy coating of copper for increased conductivity; at the high current end the bar is solid copper. The entire electrode is coated with lead for corrosion resistance. The lower end of the electrode, which extends through the firing chamber, is wrapped with plastic tape to prevent chromium plating in that area.

To protect the rifling grooves in the gun, a Koroseal sleeve covers the end of the electrode while it is being inserted. After the gun tube is raised from the assembly pit, this sleeve is removed and the plastic centering disc is installed at the breech end of the electrode.

Final Preparation for Plating

In final preparation for chromium plating, the gun tube, carrying the electrode assembly, is subjected to a last cleaning operation and a reverse-current etch. The gun, carried by an overhead crane, is lowered into a 4-foot by 6-foot tank, 30 feet in

DO A BETTER JOB FASTER...



cut cleaning costs right down the line

METALWASH Spotless Dryer
eliminates hand wiping of lacquered and plated parts

The **METALWASH** Spotless Dryer is specifically designed for the spotless drying of plated and polished parts.

The Spotless Dryer blasts the water from all surfaces of the work *mechanically* with jets of high velocity room-temperature air. This *instantaneous* water-stripping, *completed before evaporation begins,* removes every trace of stain-causing dissolved salts.

The work is then conveyed through a hot-air blow-off which evaporates all moisture remaining in seams and folds, and at points where the rack touches the work.

Spotless Dryers normally are furnished as complete units with built-in conveyor and drive, or they can be built to fit into any existing conveyor line.

METALWASH VAPOR DEGREASERS *provide new speed, economy, durability.*

METALWASH TRIPOLI REMOVER *automatically removes tripoli and rouge.*

METALWASH PHOSPHATIZING MACHINES *provide ideal surface for lasting paint finishes.*

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WASHING PICKLING DRYING
PHOSPHATIZING DEGREASING

METALWASH MACHINERY CORPORATION
915 North Avenue, Elizabeth 4, N. J.
In Canada, Canefco, Ltd., Toronto, Ontario

depth, containing a warm solution of chromic acid. The aluminum current carrying bars of the electrode assembly rest on copper pads at each end of the tank. For reverse etching, these are positively charged, and the gun barrel is thus anodic. Flexible leads from the upper end of the central electrode are connected to cathodic bus bars at the side of the tank. The reverse etching operation is continued for several minutes.

Chromium Plating

At the end of the etching operation, the electrodes are disconnected and the gun is transferred, again by overhead crane, to the chromium plating tank. This is 12 by 4 by 30 feet deep. The electrical connections are similar to those of the etching operation but with the potentials reversed, so the central electrode is anodic and the gun becomes the cathode.

The chromium plating solution is of a standard composition, and is analyzed daily for chromic acid content and weekly for sulfate. It is operated warm. The heavy electric current, in the chimney-like vertical tube, causes a violent movement of solution up through the barrel. This vigorous internal agitation helps produce a uniform electrodeposit with good physical properties, and permits the use of high current densities.

Circo Vapor Degreasers use 30% less solvent

CIRCO
CROSS ROD DEGREASER

New, modern Circo vapor degreasers — whether large or small — are engineered to save on solvent consumption. Construction features like balanced condensing coils, leak-proof pumps and dual vapor-level control are today saving companies 30% and often more in solvent use. Circo degreasers perform faster, save precious man-hours through engineering designs developed through 30 years experience in vapor degreasing.

Circo Introduces Ultrasonic Cleaning

Write for details on the most modern, talked about metal cleaning development of the century—the Circosonic degreaser that cleans small metal parts by the power of sound.

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Vapor Degreasers • Metal Parts Washers • Dryers • Solvent Recovery Stills

Studebaker

SAVES TIME WITH

Delpark Spray Booth Filters

Automotive Synthetic Enamels, as a rule, are very difficult to handle. Equally difficult is the proper maintenance of spray booths where this type of enamel is used.

To reduce maintenance and cleaning time, the Studebaker Corporation has installed the DELPARK 36138 AFB Unit illustrated. This unit filters over spray from the wash water used in a spray booth where small sheet metal parts are painted.

With this installation, the Studebaker Corporation is effecting important savings in time and money.

If you have spray booths using wash water systems, DELPARK filtration can save you time and money on cleaning and maintenance. *Write today for further information.*

Delpark INDUSTRIAL FILTRATION

BACKED BY MORE THAN 30 YEARS EXPERIENCE IN INDUSTRIAL FILTRATION

INDUSTRIAL FILTRATION COMPANY • 166 INDUSTRIAL AVE., LEBANON, IND.

The time required for plating is several hours, being varied somewhat depending on the original machined diameter of the tube and the depth of plate needed to provide the proper final diameter. Electric current for the etching and plating operations, as well as for the stripping of rejects, is supplied by a battery of motor generator sets.

Final Treatment

At the completion of the plating operation, the current is cut off, the electrode contacts disconnected, and the gun and assembly are transferred to a cold water rinse tank. The rinse water is vigorously agitated with air, and the gun is raised and lowered in the tank several times.

The completed unit is returned to the electrode assembly pit for removal of the electrode and fixtures. The tube is then inspected with the Borescope and star-and-plug gages. Any residual chromic acid deposits are flushed out with hot water. Further machining of the chrome plated bores is not usually necessary, but honing is resorted to occasionally if the bore is undersize.

If defective plating occurs, the plate must be removed by stripping. A 2-inch iron bar is used for the central cathode; it may be deliberately positioned off-center if the chromium deposit is not even. Defective plating is subjected to as many stripping cycles as necessary for complete removal of the chrome. The electrode is then removed, the tube is washed in air-agitated cold water, and is returned for reprocessing, starting at the liquid honing stage.

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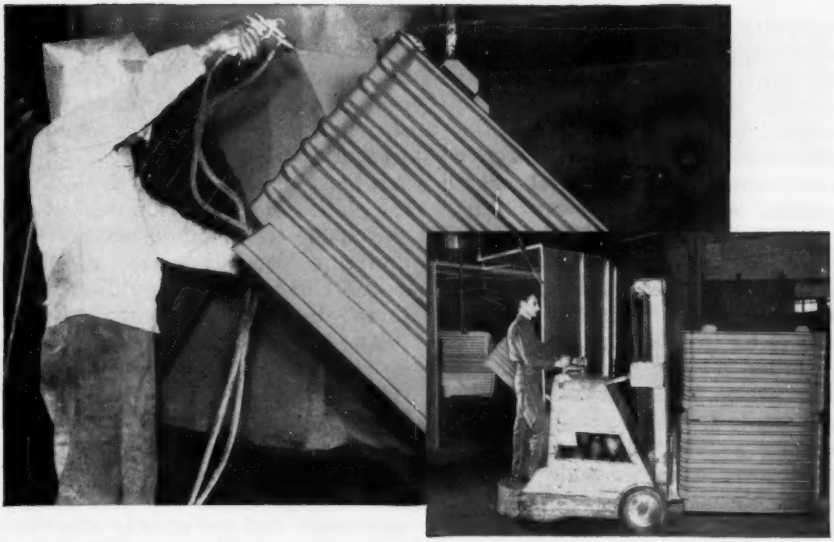
Sulfamate Nickel Plating

THE 1954 Meeting of the Electrotypers, held in Cincinnati, included a symposium on nickel sulfamate solutions and installations, conducted by Richard Barrett, of Barrett Chemical Products Company, Shelton, Connecticut. Most of the technical information presented has been covered in the October, 1953, issue of PRODUCTS FINISHING, but some more recent developments and operating experiences were reported.

Nickel sulfamate solutions are being used in more than 60 plants in the United States at the present time, with a total installed volume of more than 50,000 gallons. About half of these plants are in the elec-



NOW...sprayed...air-dried...loaded in MINUTES instead of HOURS!

Fast-drying Sherwin-Williams Finish helps solve storage space problem

Long air-drying time caused a storage space problem for Powell Pressed Steel Co., Hubbard, Ohio. A fast, practical answer was found by close teamwork with Sherwin-Williams Industrial Finish Specialists. The new, faster drying finish developed met Powell's requirements for resistance to exterior exposure, machine oils and general rough usage.

Tested and adopted, the new finish solves the problem of storing bulky steel tote boxes after finishing . . . permits loading almost directly, after spraying, into railroad cars for shipment. Where drying formerly required 4 to 8 hours, boxes now are loaded after as short a period as 4 to 8 *minutes* after spraying!

Industry-wide experience in product finishes enables Sherwin-Williams to offer similar help on many related problems of engineering, production or sales. Investigate—without obligation—today! Write: The Sherwin-Williams Co., Industrial Div., Cleveland 1, Ohio.

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INDUSTRIAL FINISHES

trotyping industry. The principal advantages of sulfamate nickel over the conventional Watts nickel solution, as pointed out by several operators, include speed of deposition, improved quality of the nickel deposit, and ease of control of the plating operation.

In the production of electrotype shells, nickel is plated onto a plastic or other non-conducting base. It is particularly desirable that the nickel be free from internal stress, in order to avoid cracking and pulling away from the plastic. The sulfamate solution is unique in producing a relatively stress-free deposit over a rather wide range of operating conditions, and its adoption by electrotypers has been rapid.

Some difficulties have been encountered with burning of the contact strip between the cathode bar and the conducting film on the plastic, because of the extremely high rate of deposition. Various means of overcoming this trouble were described at the symposium; the best and most obvious method is to start the plating slowly until a deposit of reasonable conductivity has been built up. Deposition rates as high as 0.001 inch in ten minutes are obtained in some electrotype plants.

The traditional electrotype is constructed of nickel backed up with a relatively heavy layer of copper. It was suggested by Mr. Barrett that the industry consider all-nickel electrotypes, since these are entirely satisfactory from the consumers' viewpoint, and are greatly superior to the copper-nickel combination with respect to shrinkage. Shrink-

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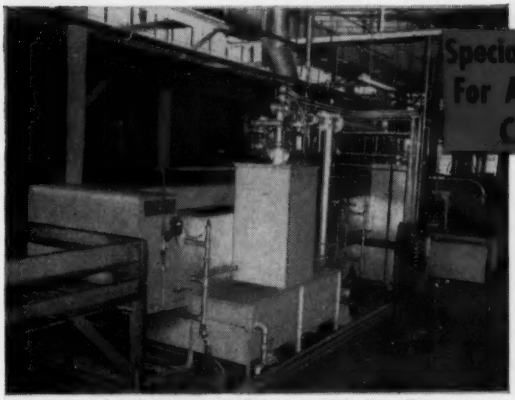


Completely Automatic Installation in Major Appliance Plant

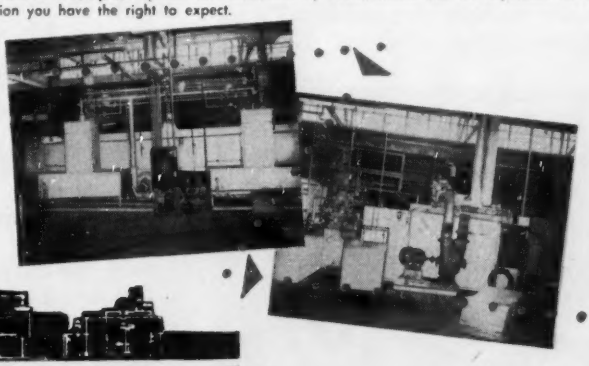
Special Power Spray Washer For Application of Dry Film Coats to Flat Sheets

Takes Mill Steel — Cleans It, Applies and Dries the Coating with Speeds Up to 400 Sheets per hour

Here is another example of P-D engineering efficiency. The Power Spray Washer, shown in this completely automatic installation in the plant of a major appliance manufacturer, meets and solves important production problems. A special washer such as this was required to not only **clean** mill steel but to **apply** and **dry** a Dry Film Coat for drawing, stamping, etc. High productivity requirements were met by P-D engineering this washer to handle the flat pieces at speeds up to 400 per hour. This Two Stage Washer and Forced-Dry Oven is heated by direct gas fired, vertically mounted heaters.

PETERS-DALTON is an organization of specialists—staffed by men who KNOW the answers to your problems. Power Spray Washers (like the one illustrated) of all sizes, types and required uses, can be developed to meet your needs by P-D. Regardless of size—from a single unit to a **complete** system—an installation by Peters-Dalton can be depended on to give you the service and production you have the right to expect.

The two photographs at the right are actually continuing views of a Two Stage Washing Machine with Blow-Off Section. Flat sheets enter this continuous unit for cleaning and coating and exit completely finished at high speeds to the right.



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NEW POWER SPRAY WASHER BULLETIN

We have just published a new Technical Bulletin No. 301 on Power Spray Washers. It is completely informative, profusely illustrated, and contains engineering drawings of many types of Power Spray Washing Machines. We will gladly send you a copy if you will fill out and return this coupon.

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age of the all-nickel shell was reported to be only one fifth that of the conventional shell, hence the register in multi-color work is many times improved. Shortage of nickel is the principal factor retarding adoption of all-nickel electrotypes; Mr. Barrett pointed out that anodes of secondary nickel are available, although at a premium price. Cast nickel anodes of 99 per cent purity have been proved satisfactory for the sulfamate solution, although earlier recommendations required the use of rolled, depolarized anodes. A further advantage of the all-nickel shell is its considerably higher scrap or salvage value, pure nickel being much more in demand than nickel-copper mixtures.

Mr. Barrett also presented a paper on sulfamate nickel plating at the 1954 Annual Convention of the American Electroplaters' Society, in New York. There is considerable interest in this type of solution at the present time. Its adoption is spreading rapidly, both for electrotyping and for other nickel plating applications, particularly where a compressive stressed nickel deposit is desired to improve the fatigue strength of the base metal.

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Phosphorized Copper Anodes

A PAPER on the effect of anode composition in acid copper plating, was read by Ralph P. Nevers, American Brass Company research chemist, before the 41st American Electroplaters' Society convention.

With co-authors E. W. Palmer and R. L. Hungerford, also of the company's Waterbury, Conn., research staff, Mr. Nevers reported that phosphorized copper anodes provide freedom from anode sludge —no "bagging" or diaphragms required; no copper buildup in solution; exceptionally smooth, heavy cathode deposit; and 10 to 15 per cent more cathode deposit per pound of anode.

Experiments also indicated that cathode deposits from phosphorized copper anodes were fine and dense regardless of the grain size of the metal, and that there was no advantage in cold rolling anodes to obtain a small grain structure.

It was discovered that adding 0.02 to 0.03 per cent phosphorus to commercially pure electrolytic copper produced an anode material which,

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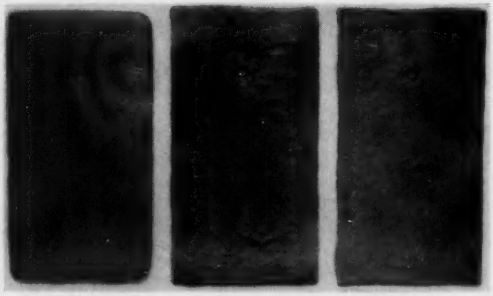

Fig. 1—Corroded copper anodes. Specimen at left is phosphorized copper, center specimen is fire-refined copper, and anode at right is electrolytic tough pitch copper. *(Photo courtesy American Brass Company, Waterbury, Conn.)*

when placed in the electrolyte, developed an adherent surface film, dark brown to black in color. Further, it was found that this film suppressed the formation of metallic particles which ordinarily form sludge in the tank, build up copper in the plating solution, and are carried by the electrolyte to the work to form nodular growths and a rough, uneven cathode surface.

It was further discovered that wrought phosphorized copper anodes corroded more evenly and deposited more copper on the cathode per pound of anode, and that this deposit was of a dense, fine character with no uneven deposits. The black film which forms does not increase resistance to the circuit and no additional voltage is required. The film is not disturbed by pulling the anode from the bath and is so thin that no anode cleaning is necessary, but the film can be brushed from the anode if desired.

Deposits of ⅛ inch and thicker, free of pits or rough growths, may be made with phosphorized copper anodes. Analysis shows that these deposits are as free of phosphorus as deposits from pure copper anodes.

The use of phosphorized copper anodes provides an important economy in maintaining the clarity of the plating solutions over long periods of operation. Because there is no sludge formed or free copper particles to dissolve and build up copper in the electrolyte, it is not necessary to withdraw copper-laden electrolyte and replace it with copper-free solution. Even in long runs on heavy plating operations, phosphorized copper anodes eliminate

to page 74→

POCKET HANDI-GAGE

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for electrodeposited, hot-dipped and painted coatings on steel. No bigger than a fountain pen, but what a job it does! Tests plated, painted, enameled, or plastic laminated coatings in SECONDS—in the lab or on the production line. Accurate, quick and easy to use.

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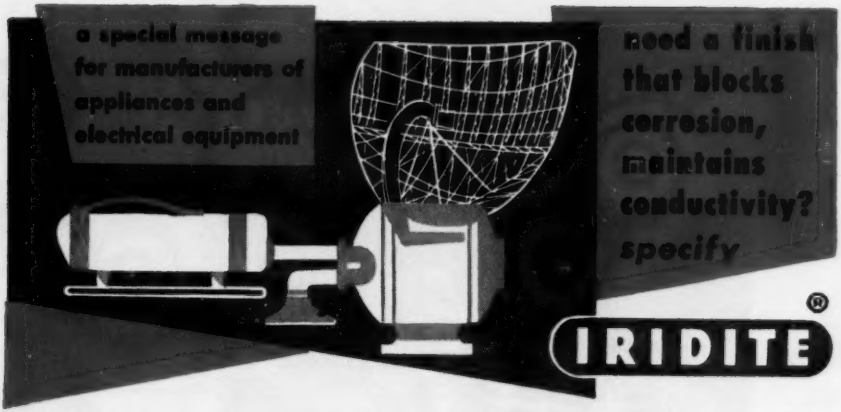
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Here's peak corrosion protection combined with conductivity, solderability, weldability. Here's a firm and lasting base for paint . . . or sparkling clear or colored decorative finishes to add quality and sales appeal. Here's Iridite . . . and here's how you can use it:

ON ZINC AND CADMIUM you can get highly corrosion resistant finishes to meet any military or civilian specifications and ranging in appearance from olive drab through sparkling bright and dyed colors.

ON COPPER . . . Iridite brightens copper, keeps it tarnish-free; also lets you drastically cut the cost of copper-chrome plating by reducing the need for buffing.

ON ALUMINUM Iridite gives you a choice of natural aluminum, a golden yellow or dye colored finishes. No special racks. No high temperatures. No long immersion. Process in bulk.

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AND IRIDITE IS EASY TO APPLY. Goes on at room temperature by dip, brush or spray. No electrolysis. No special equipment. No exhausts. No specially trained operators. Single dip for basic coatings. Double dip for dye colors. The protective Iridite coating is not a superimposed film, cannot flake, chip or peel.

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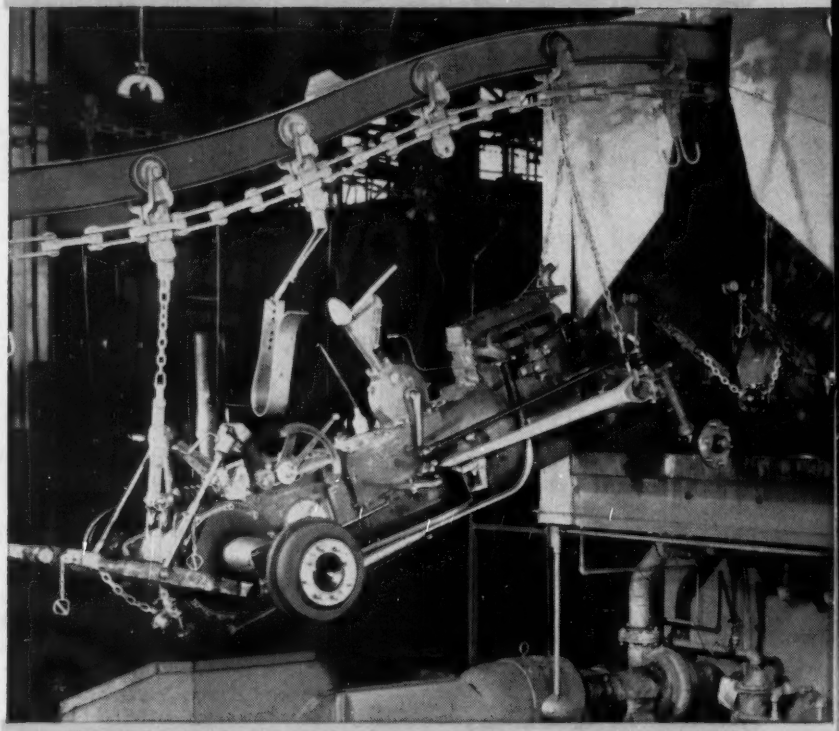

View of Ferguson Tractor assembly line, showing chassis entering two-stage washing machine. Heat retained by the metal surfaces from this washing and drying assists in drying the paint film, which is applied later.

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Protective Finishes
Contribute to Durability of
FERGUSON FARM TRACTORS

PROBABLY NO OTHER piece of equipment is subjected to such a wide variety of conditions as a farm tractor. It must withstand every kind of weather. It must resist the corrosive effects of fertilizers, manure and spraying compounds. When not in use, it is quite likely to be left out of doors, as many farmers do not have adequate storage facilities.

Protective finishes used on this type of equipment *must* be extra tough and durable.

That is why Pittsburgh is especially proud that its long-lasting enamels are used on the tractors produced by Harry Ferguson, Inc., one of the country's foremost builders of farm tractors.

To meet the unusual requirements, Pittsburgh prepares a special Tractor Gray Enamel that is being used on the tractor chassis and all detail parts with uniform success and satisfaction.

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the need to use bags of linen, fine canvas or glass cloth, or of diaphragms to prevent copper particles in the electrolyte from attaching themselves to the cathode.

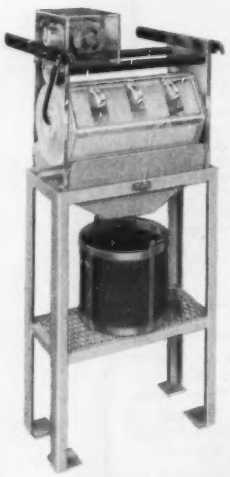
Scrap loss is exceptionally low. There is no tank sludge or loss in electrolyte buildup and the anode corrodes evenly and uniformly with a tendency to round off sharp corners (Fig. 1). There is no undercutting or detachment of large particles, or deformation of the anode which might cause short circuit with the cathode. Corrosion of phosphorized copper anodes can be allowed to proceed much further, and the resulting "fish" is small, smooth and compact.

The new anodes are said to be particularly suitable for electrotyping and electroforming where cathode deposit must be exceptionally even and smooth. The findings of the laboratory experiments have been substantiated by six years of use of the company's phosphorized copper anodes in a large-scale commercial electroforming operation, where a smooth, dense plate was required on a very fine and intricate pattern.

While phosphorized copper anodes possess advantages over other anodes in acid electrolytes, they are also satisfactory in cyanide and other electrolytes where copper anodes are used.

The American Brass Company will market phosphorized copper anodes under the trade name, Anaconda "Plus-4" Anodes.

Anaconda "Plus-4" Anodes will be sold in the same forms and sizes



Load/Unload Stand for convenient and fast handling of work load. Baskets in perforated metals or wire mesh.

STUTZ PORTABLES

The Stutz Portable Plating Barrel is constructed of high tensile acrylic resin which provides the best material for continuous processing of piece parts through the operations of Alkali Cleaning, Water Rinsing, Acid Treatment and Plating. Progression through these operations is made by manual handling or if necessary, with the assist of an overhead traveling hoist. Cylinder suspended and rotated between heavy side frames braced with stainless steel tie-bars thereby providing rigid bearing stability. Motor drives are 1/20 and 1/50 H.P.* gearhead incorporating hardened steel and bronze gears for heavy duty performance. Forward and reverse rotation switch provided. Fused service supply. Ring and idler gears are High Tensile Acrylic, driving gear urea laminate. Gears are cut 10 pitch 20° pressure angle and are therefore virtually indestructible. Motor platform upper tie-bar assembly steel plastisol covered. Copper suspension arms with attached lifting handles plastisol covered. Cylinders can be supplied in special sizes, partitions if necessary and special cathode contactors as required.

* 115 or 230 volt single phase.

Stand . . $50.00 **6" x 12" Barrel . . $176.50**
Basket . . $8.65 **8" x 18" Barrel . . $275.00**

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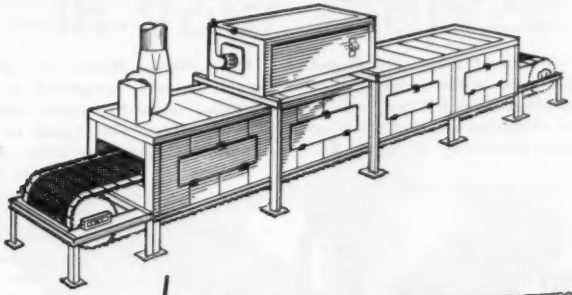

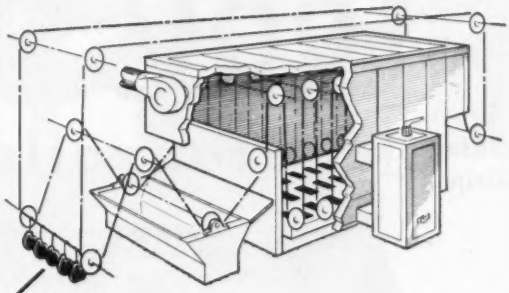

The solutions to your Industrial Oven and process heating problems can be found in this bulletin.

Your inquiries are solicited whether your requirements are for simple ovens or large complicated continuous systems.

For your copy of Bulletin 200 write or call.

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as Anaconda electrolytic copper anodes. A patent has been issued to The American Brass Company by the United States for phosphorized copper anodes for electroplating.

The further increase of 2,000,000 pounds monthly now achieved in the nickel production capacity of International Nickel, world's largest producer of the metal, and other expansion programs underway by other producers indicate that free world nickel poduction should reach about 385,000,000 pounds in 1954. This would be an increase of approximately 45,000,000 pounds over the estimated production of 340,000,000 pounds in 1953.

International Nickel and aluminum producers recently completed a ten-year cooperative research program which developed a nickel-plating that bonds so strongly with appropriate aluminum alloys that the composite materials may be deep drawn and later finished with chromium plate. This is expected to open a new market in the plating of aluminum appliances and furniture when nickel becomes more freely available.

"Liquid" platinum and "liquid" palladium applied as a varnish and reduced to a metal by ceramic firing are used on fine china and glassware for obtaining metallic decorative effects. These precious metals retain their white color and are unaffected by exposure to foods, liquors or sauces.

For further information on any product mentioned in this issue — use the READER SERVICE CARDS inside the front cover.

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Non-slip grip on Stanzoils handles wet, slippery objects as if dry. Speeds work—cuts accidents. PIONEER Processed *milled* neoprene gives extra hours use in contact with oils, acids, alkalies, solvents—has higher tensile strength, greater tear resistance than any other oil-proof rubber. Only a liquid-tight glove gives positive physical protection from conditions causing dermatitis.
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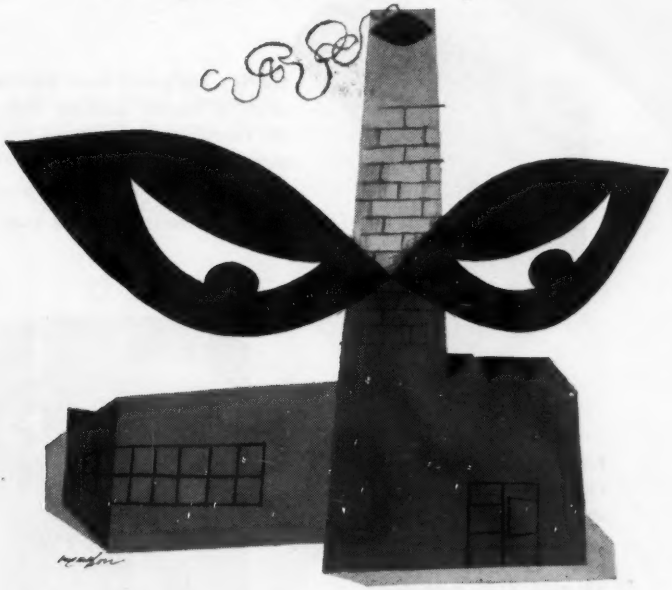
Is there a thief in your shop?



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Don't let expensive cloth and waste wipers rob you of profits. Replace them with Type 1300 KIMWIPES—the *modern* industrial wipers that give you four to ten times more wiper area per dollar!

Yes, and new Kimwipes 1300 are soft, strong and absorbent. A full 12″ x 18″ in size, they hold up to 8 times their own weight in liquids. They're non-abrasive, too. There's no hold-over of metal chips or other infectious material that may cause dermatitis and loss of man hours. Type 1300 Kimwipes are absolutely clean to start with, and are disposed of after use!

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Finishes

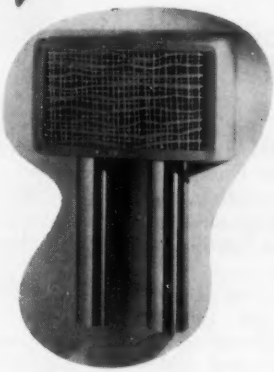
The toy cap pistol here illustrated is constructed almost entirely from zinc base die castings. The castings are barrel zinc plated and bright dipped in chromic acid before assembly.

(PRODUCTS FINISHING Staff Photo)

Federal Sign and Signal Corporation built this special sign for Commonwealth Edison Company of Chicago. The 12-foot-high bulb has over 135 pounds of 2-inch-square mirrors cemented to its surface. The base of the sign display is made of polished stainless steel and black porcelain enamel.

(Photo courtesy Federal Sign and Signal Corp., Chicago 19, Ill.)

that aid in appearance and utility



The Rittenhouse "Lido" door chime features a graceful metal cover finished in desert sand lacquer finish. Chime tubes are brushed brass.

(Photo courtesy Reinecke and Associates, Chicago 11, Ill.)

The Youngstown Kitchens broom-linen cabinet is finished with two coats of white baked enamel. The hardware is finished in chromium plate. Base panels are finished in black enamel, baked on.

(Photo courtesy Mullins Manufacturing Corp., Warren, Ohio)

Automatic Copper, Nickel, Chromium Plating

INDUSTRIAL Stamping and Manufacturing Company, a division of Vinco Corporation, Detroit, Michigan, recently "went automatic" with the installation of Udylite automatic plating equipment.

The Udylite 24-station Automatic Return Type Plating Machine replaces the former manual operations of copper, nickel and chromium plating of automotive parts. The machine operates at a production speed of 50 racks per hour based on a 55-minute nickel plate and is equipped with 3000-ampere capacity carrier hooks. It has not only the standard Udylite variation of process timing but also is built so that a simple cam operation halves the time in nickel with the cleaning cycle remaining the same.

The 17,000-gallon Udylite #31 Bright Nickel bath (Fig. 1) provides maximum brightness, uniformity and coverage. The high anode and cathode efficiencies of the bath tie in well with overall plant efficiency.

This nickel tank is equipped with

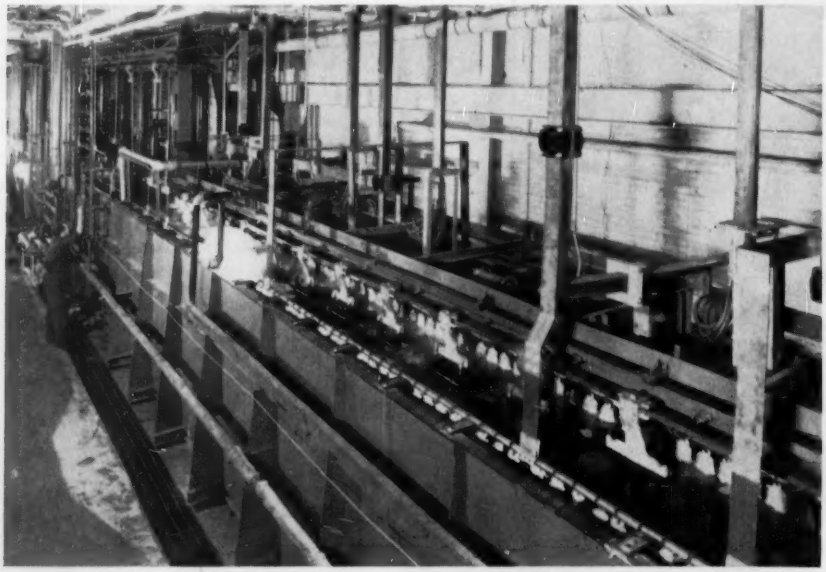


Fig. 1—A view of the nickel plating section of the Udylite Full Automatic Plating Machine installed at Industrial Stamping and Mfg. Co., Detroit.

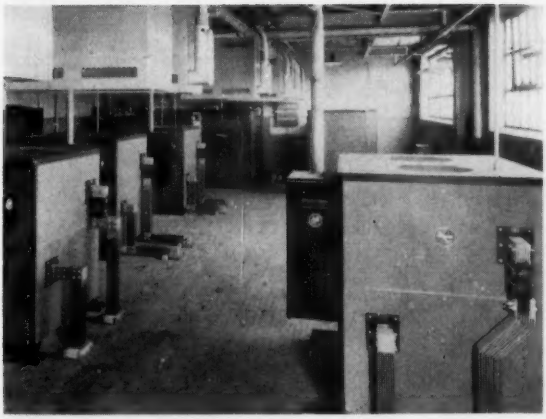


Fig. 2—Rectifiers provide 30,000 amperes at 2-9 volts for nickel plating.

an electrolytic purification system of the latest design and a new mechanical horizontal agitator which gives increased efficiency in the plating process.

The nickel plating section is constructed like a semi-automatic, eliminating unnecessary mechanical structure. However, this section has been provided with upright columns built in so that it can be changed over to the standard full automatic operation at any time to take care of future requirements.

As on all of the Udylite plating machines the preset time cycle prevents the work carrier from remaining in the cleaning, rinsing or plating bath for more than the required number of seconds or minutes.

Udylite rectifiers are used to provide the 75,000 amperes required, 30,000 amperes at 2 to 9 volts are used in the nickel plating operation (Fig. 2). A

Fig. 3 — Loading and unloading stations on the automatic plating machine are quite close together in the interest of efficiency. (Photos courtesy The Udylite Corp., Detroit 11, Mich.)

single control station is provided giving a one-push-button control of the five selenium rectifiers used for nickel plating.

The nickel plating rectifiers are controlled automatically so that proper voltage and current are supplied.

The chromium plating tank is equipped with a 3-voltage rectifier combination. Each rack of work goes into the chrome plate "live" at low voltage, approximately 3 volts. When the racks arrive at the bottom of the down stroke, a strike voltage of 9-18 volts is applied for a few seconds. The voltage is then lowered to plating voltage where it remains for the duration of the time in chrome plate. This cycle of current application is completely automatic and applied to each rack as it is processed through chromium plating (Fig. 3). This eliminates the passivating film sometimes formed. The high voltage strike assures complete coverage even on low current density areas.

Complete coordination of mechanical, electrical and chemical development and control is here provided for economy and accuracy of production plating.

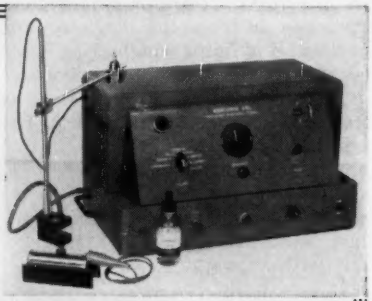
Barrel Deburring Hardened Steel Gun Parts

A COMPANY working on a large defense order faced the job of removing ragged burrs from a milled hardened steel gun part at the rate of more than 1,000 a day. The parts are about 3 inches long and ½ inch wide.

Just A Minute . . .

and YOU can be SURE of the Plating Thickness

with the



KOCOUR Electronic Thickness Tester

A minute is the time required for the average test . . . a relatively short time to check your work and be sure it's right. Readings are direct . . . accurate to within 90-95% . . . determines the thickness of decorative or hard chromium, silver, tin, cadmium, zinc, brass, copper, nickel, lead, and other plating on various base metals and materials. See how the Electronic Thickness Tester can solve your problems.

KOCOUR CO.
4814 S. St. Louis Ave.
CHICAGO 32, ILLINOIS

WRITE FOR LITERATURE

PIONEERS IN CONTROL FOR THE ELECTROPLATING INDUSTRY

it's the finish that counts!

ROTO FINISH

Roto-Finish CHIPS AND COMPOUNDS ARE FIRST

in economy—in quality—

in performance

Roto-Finish Chips and compounds are carefully manufactured to fit your specific needs by the company that originated the Roto-Finish processes. They're specially designed to give the best results — faster — economically.

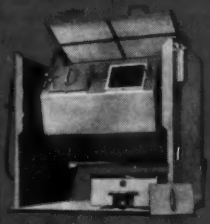
SAVE MANHOURS AND MONEY by eliminating hand finishing.

GIVE ABSOLUTE UNIFORMITY...in any quantity.

MAINTAIN PRECISION TOLERANCES.

CUT FINISHING costs as much as 80%.

LOWER INITIAL AND MAINTENANCE costs.



THE ROTO-FINISH PROCESS puts grinding, deburring, descaling, polishing, britehoning and coloring on a MASS PRODUCTION BASIS. Put the experience and facilities of Roto-Finish to work for you on YOUR SPECIAL FINISHING PROBLEMS.

WRITE FOR the fact-packed Roto-Finish catalog today!

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ROTO FINISH

associated with The Sturgis Products Co.
3704 MILHAM ROAD, KALAMAZOO, MICH.

P. O. Box 988—
Phone 3-5578

FOREIGN REPRESENTATIVES: CANADA — Windsor — Fredric B. Stevens Canada Ltd. ENGLAND — London — Roto-Finish Limited — 39 Park Street — Mayfair • AUSTRALIA — Melbourne — A. Flavell Pty, Ltd. • HOLLAND — Delft — N. V. Roto-Finish Maatschappij — Rotterdamse — WEG 370A • AUSTRIA, GERMANY, SWITZERLAND — Frankfurt a.M. — Metallgesellschaft A.G., Germany • ITALY — Milan — Societa Roto-Finish a R.L. — Sesto S. Giovanni — Viale E. Marelli 31 • FRANCE — Paris — Sociote Roto-Finish, 70 rue de la Republique-Puteaux (Seine) • BRAZIL — Rio de Janeiro — Commercial E. Industrial de Formos Werco, Ltds.

Barrel deburring was the logical answer, but difficulties were encountered as soon as the company tried to get the operation established. The heavy burrs were not satisfactorily removed, although a wide variety of mixtures of large and small stones was tried, as well as various methods of barrel loading, and an extensive range of barrel speeds.

Experiments in the laboratory of the Magnus Chemical Co., Garwood, N. J., soon determined that the heavy burrs involved called for a relatively slow rotating speed and a high water level to ensure minimum slippage of the parts and to give the stones more effective cutting action.

These parts are being readily deburred today. The barrel is charged half full of Norton ST stones. Gun parts are loaded, and the barrel is filled to the charging door with water. Six ounces of Magnus De-Burring Compound No. 1 are then added, and the barrel is run at 12 r.p.m.

Results have been highly satisfactory, with complete removal of the burrs and a dependable meeting of the close tolerances involved in the job.

Much of the popular costume jewelry is given a "flash" plating of rhodium, a metal of the rare platinum group. Most applications of rhodium for this purpose are a very thin electrodeposit within the range of one-hundred thousandth to one millionth of an inch thick. This coating of rhodium provides a hard and highly reflective surface.

POLYETHYLENE COATING by a *New Process
POLYKOTED DRUMS

WHAT ARE THEY?

Polykoted Drums are standard steel drums coated with acid and alkali resistant polyethylene by a new process developed by Polykote, Inc.,* which eliminates the possibility of pinholes or solution spots inherent in the customary manner of coating with polyethylene by either flame spraying or solution coating. The coating comes applied in standard or double-thickness.

WHO USES THEM?

Polykoted Drums have been in use for over two years by hundreds of major industrial plants and platers in this country, Canada and South America.

WHERE TO BUY THEM

Contact your nearest Plating Supply House or the Manufacturer at the address below.

Send for our Free Table of Resistance of Polyethylene to Chemical Attack.

SPECIAL

LIQUID TIGHT LIDS WITH FLEXIBLE POLYETHYLENE OUTLETS ALSO AVAILABLE.

USED FOR

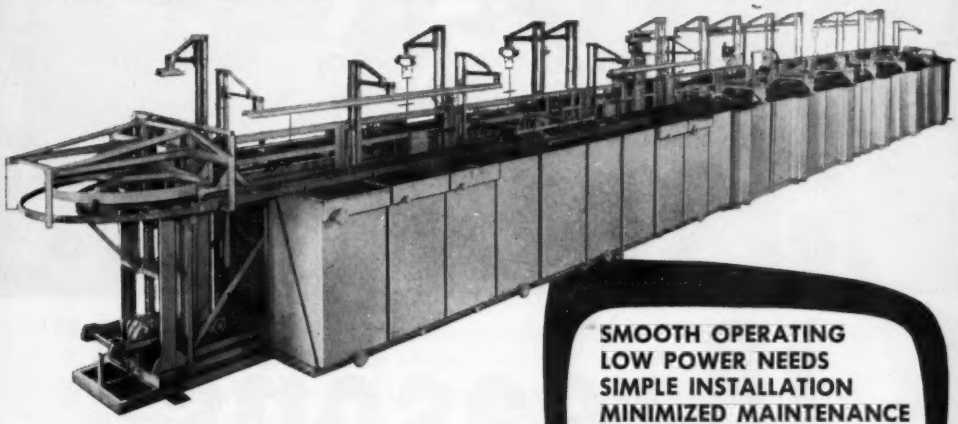
- DIPPING
- PICKLING
- RINSING
- MIXING
- STORAGE

* U. S. PATENT NO. 2,688,563

POLYKOTE, INC.

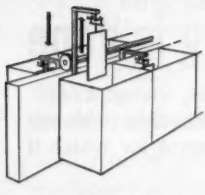
446 GENESEE ST.
BUFFALO 4, N. Y.

Revolutionary Concept in plating automation . . . by WAGNER BROTHERS

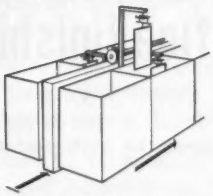


SMOOTH OPERATING
LOW POWER NEEDS
SIMPLE INSTALLATION
MINIMIZED MAINTENANCE
FULLY HYDRAULIC
COMPLETELY AUTOMATIC

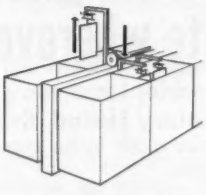
HOW IT WORKS



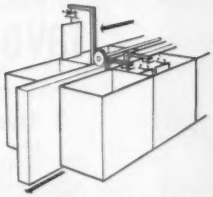
1st VERTICAL MOTION



1st HORIZONTAL MOTION



2nd VERTICAL MOTION



2nd HORIZONTAL MOTION

All transfer and conveying mechanism is mounted on a reciprocating carriage located between the two rows of tanks. Two basic movements are used to bring parts through the full plating cycle, one forward and reverse straight line horizontal motion and one raising and lowering vertical movement.

Plating racks are attached to work-carriers at the loading station. When the machine is started, lifting arms fixed to the carriage engage the work-carriers being transferred and lift them at all transfer points on one side of the machine, carry them forward to the next station where they are lowered and disengaged from the lifting arm. This sequence is simultaneously produced in reverse on the opposite side so that, when the lifting arms are being lowered on one side, they are raised on the other side of the machine.

WRITE FOR FREE, ILLUSTRATED 6-PAGE BULLETIN B 50-54. Literature contains comprehensive explanation of all features including operation, maintenance, installation, construction, lubrication, cycle timing and special adaptions.

Your *Primary* Source for Plating and Polishing Equipment and Supplies

Wagner **BROTHERS, INC.**

432 MIDLAND AVE. ● DETROIT 3, MICHIGAN

18 reasons

why Binks Model 18 Spray Gun is a growing favorite wherever fine finishing is done

1. **Laboratory tested.** Every Model 18 gun is tested before it leaves the Binks plant to be sure it gives the high performance for which it is famous.
2. **Shop tested** by experienced operators in the finishing departments of leading manufacturers.
3. **Interchangeable nozzles.** There are over 250 nozzle combinations for the Model 18.
4. **Handles a wide range of finishes.** The Model 18 is adaptable to virtually any finish on the market.
5. **Watch-like precision** in the manufacture of the bronze air nozzles and the hardened steel fluid nozzles assures correct atomization, smooth finishes.
6. **Rugged long-life body** of drop forged aluminum combines strength with light weight.
7. **Wear resistant** alumilite black finish protects the surface.

8 **Tough dropped forged bronze** head gives long service with all types of finishes.

9 **Convenient controls** at the back of the gun adjust the spray pattern from round to flat with all intermediate steps.

10 **Comfortable pistol grip,** properly shaped to fit the hand, lessens fatigue.

11 **Precise and smooth control** of air and fluid flow is controlled by a two-finger trigger which operates stainless steel, cartridge-type air valve.

12 **Very low pressure drop.** Large internal passages let air pass through the gun to the nozzle with little resistance.

13 **No air leakage** because the retainer ring is not required to hold air.

14 **Floating needle valve** of hardened stainless steel is adjustable for wear...keeps gun in service longer.

15 **All accessories are available** for the Model 18 because it is part of Binks complete integrated line of spray finishing equipment.

16 **Standard pipe threads** are used on the Model 18 and on all other Binks products.

17 **Available from local sources.** More than 6000 Binks jobbers are ready to serve you.

18 **24 hour service** on adjustments and repairs. Parts and service are available locally.

FOR COMPLETE INFORMATION about the Model 18 gun or other Binks spray painting equipment, see your local jobber or write to the address below.

Ask about our school. A week of training in best finishing methods, equipment selection and maintenance. No charge for tuition. All welcome. Write for class dates and curriculum.

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EVERYTHING FOR SPRAY PAINTING

SPRAY BOOTHS

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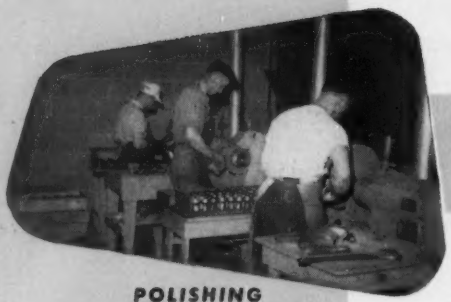
REPRESENTATIVES IN PRINCIPAL U. S. & CANADIAN CITIES • SEE YOUR CLASSIFIED DIRECTORY



POLISHING

CLEANING

PLATING

FINISHING

New • EQUIPMENT • MATERIALS • PROCESSES

Water Wash Paint Booth Chemical

"Presto-Mat," a liquid chemical for water wash paint spray booths has been announced by the 56 year old Chamberlain-Haber Chemical Co., 1105 West 11th Street, Cleveland 13, Ohio.

According to the manufacturer, Presto-Mat is effective because its liquid form ensures solubility with no sediment or clogging.

Presto-Mat is added to the water in the tank reservoir where it combines with the paint sludge to form a floating mat. This mat is easily skimmed from the surface of the tank reservoir so that the spray booth curtain, nozzles and all metal parts are always kept free and clean. Presto-Mat makes possible a full and heavy water curtain, maximum air velocity, maximum paint reclamation and a minimum of spray booth maintenance.

For further data circle No. 1 on Reader Service Card inside back cover.

Vibra-Degreaser

The Manpro Vibra-Degreaser, engineered and produced by Manufacturers Processing Company, Detroit, Michigan, has been announced. It is claimed that this patented unit is a high production machine in which any combination of degreasing cycles may be incorporated. The Vibra-Degreaser is said to be extremely compact, and is reported to eliminate the handling common to the degreasing of small metal parts.

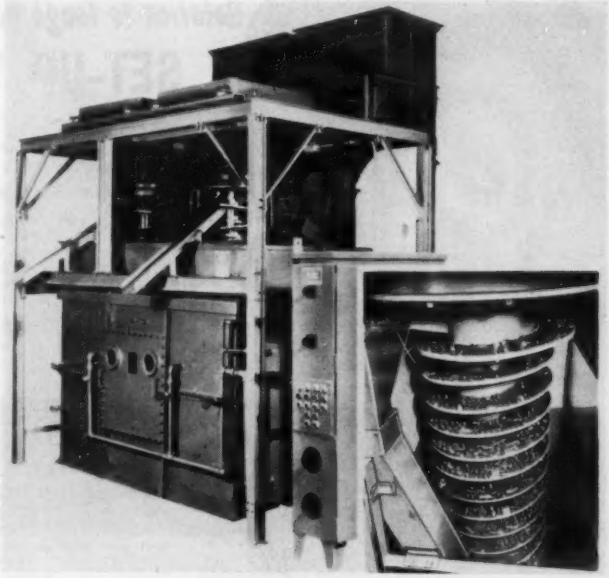
The Vibra-Degreaser is equipped with a conventional type hopper. The small parts to be cleaned are loaded into the hopper. The parts are drawn from the hopper by an electro-magnetic vibratory feeder. This feeder carries the work at a constant and controlled rate through a chute and into a pan at the bottom of a spiral elevator shown in the illustration. The spiral elevator carries the work up through the cleaning cycle to the discharge point at a speed which may be varied by a selector switch.

Among other advantages said to result from the high frequency vibrating action of this Manpro unit is the improved removal of chips and solvents from metal parts which increases efficiency in cleaning and drying of parts.

This degreaser is furnished with a complete control unit including a selenium rectifier. It may be heated by either gas, steam, or electricity. Heating units are interchangeable.

The Vibra-Degreaser will be on exhibit in Booth No. 1421 at the National Metal Congress and Exposition, Chicago, November 1-5, 1954.

Additional information on the Manpro Vibra-Degreaser can be obtained by writing to Manufacturers Processing Company, 1354 Hilton Road, Detroit 20, Mich., or by circling No. 2 on Reader Service Card inside back cover.



Manpro Vibra-Degreaser

Barrel Nickel Plating Process

An improved nickel plating process for barrel electroplating, announced by Hanson-Van Winkle-Munning Co., is said to produce fully bright ductile white deposits that have low stress.

The process is characterized by stability of plating solution over long periods, and deposits that require no activation prior to chromium plating, it is claimed.

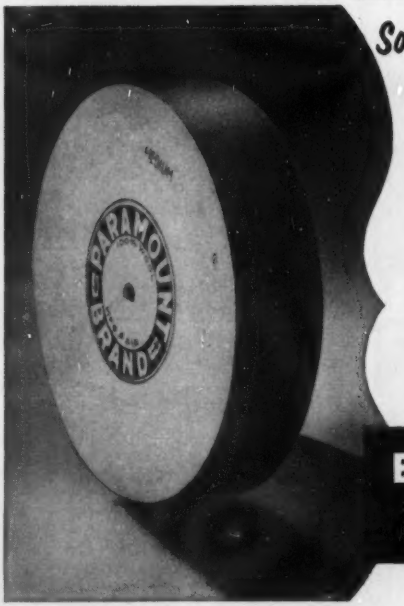
Called Nickel-Lume Barrel Plating, the new process is the adaptation of H-VW-M's standard Nickel-Lume bright nickel bath to barrel electroplating. Typical products handled include small automotive parts, jewelry, novelties, toilet articles, hardware, fasteners and screws.

Plating can be carried on over a temperature range of 75 to 120 deg. F. without any loss of brightness. Voltage range is 8 to 10. Rate of deposition is high, up to about 0.0002 inch in 30 minutes, depending upon the particular installation. The pH runs between 3.5 and 4.2 (electrometric).

Solutions are made up of nickel sulfate (200 lb./100 gal.), nickel chloride (37.5 lb./100 gal.), boric acid (31.2 lb./100 gal.), NL-1 brightener (5.0 lb./100 gal.), NL-2 brightener (30.0 fl. oz./100 gal.).

Cast carbon or rolled depolarized anodes may be used with the Nickel-Lume solution. Plain twill or Style D anode bags, rubber-lined steel tanks and plastic barrels are recommended. For heating, H-VW-M suggests internal lead coil or external heat exchanger (Durlron or Karbate pumps, and seamless nickel or Karbate tubes).

For further information, write to Hanson-Van Winkle-Munning Co., Matawan, N. J., or circle No. 3 on Reader Service Card inside back cover.



Solution to tough polishing problems

SET-UP WHEELS

... the felt wheel by *Paramount*

... the abrasive grain by your favorite manufacturer

Whether you work with metals as soft as aluminum or as hard as steel, it's 20 to 1 your polishing applications call for abrasive grains in the 120-240 range. It's here that eye-appealing finishes are born — and it's the very range where Paramount Felt Wheels set up with the proper abrasive can do the most for you — both quality- and cost-wise.

Discover for yourself why hundreds of manufacturers call Paramount Felt Wheels the versatile workhorses of their polishing rooms — call your supply house today.

BACON FELT COMPANY

447 WEST WATER STREET • TAUNTON • MASSACHUSETTS

Established 1825 "Felt Does It Better"

New 12-page catalog shows ways you can profit with felt write for your copy today.

peel off over-spray the fast, safe, easy way with "LIQUID ENVELOPE"

the ORIGINAL time-tested strip-coating

Peel 'em clean in minutes — then re-spray with "LIQUID ENVELOPE". That's the simple, labor-saving way to keep your booths firesafe, lighter, and better ventilated.

"LIQUID ENVELOPE" is non-toxic . . . does not contain dangerous chlorinated solvent. It will not corrode metal walls or ventilating ducts. And it's flame proof and fireproof . . . the dry film will not burn or support combustion.

Remember "LIQUID ENVELOPE", the original strip-coating, does exactly what we claim. It's been used for years in hundreds of plants.

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5-gallon can at the drum-lot price to new users only. Order from nearest distributor.

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Omaha, Neb.; Rock Island, Ill
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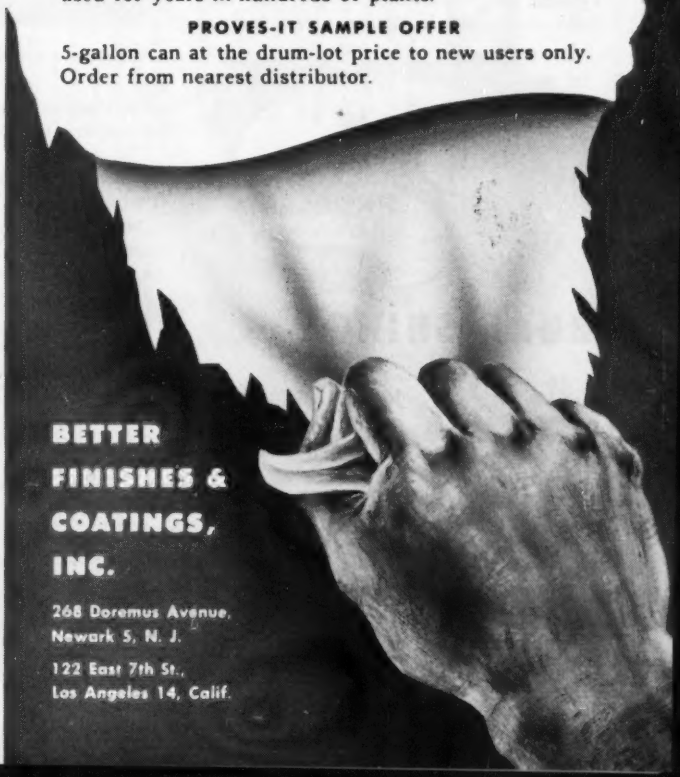
Jenson & Nicholson, Ltd., London, Eng.



BETTER FINISHES & COATINGS, INC.

268 Doremus Avenue,
Newark 5, N. J.

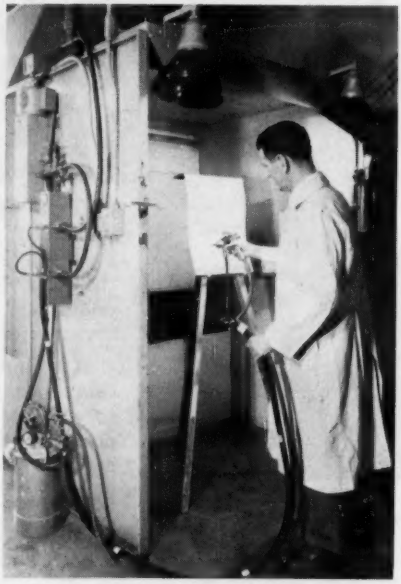
122 East 7th St.,
Los Angeles 14, Calif.

Paint Heater

Close control of organic material temperatures for the hot spray process is claimed for a new line of paint heaters developed and manufactured by the DeVilbiss Company, Toledo, Ohio, spray equipment manufacturer.

The paint heating system, which utilizes hot water, is designed for maximum efficiency in either large or small painting operations. To simplify the system and make it foolproof, DeVilbiss engineers have devised the unit with only one moving part, a pump for circulating hot water.

Material to be sprayed is heated in a heat transfer unit located near the spray station. Exchange of heat from the hot water to the material is positive and speedy. Paint cannot become overheated. To assure heated material at the point of usage, the DeVilbiss system has a jacketed hose from the heat exchanger to within a few inches of the conventional spray gun used for the application of the material.



DeVilbiss Paint Heater installed on spray booth.

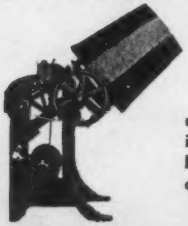
The water for the system is heated in a separate unit which can be located wherever most convenient. One water heater will handle several heat exchangers located at different points of usage. Each spray station must have a heat exchanger for each color which is to be sprayed at that station.

Material to be sprayed is supplied to the heater in the conventional manner. It can be placed in a pressure paint tank or circulated through a circulating system.

Each heat exchanger will heat up to 32 ounces of material per minute. The paint lines in the heat exchanger can be cleaned readily by flushing with a small amount of thinner.

While DeVilbiss has developed standard package outfits for typical installations, the standard units of the

IS YOUR PROBLEM
BURNISHING?



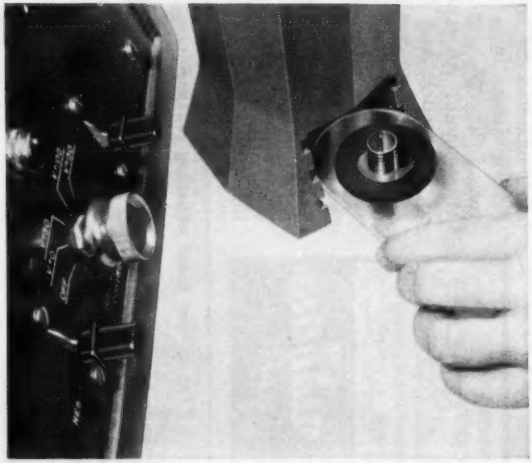
HOLLAND SUGGESTS:

Motor Driven Tilting Tumbling Barrels for cleaning, polishing, grinding, deburring, sanding, burnishing and various other applications.

WRITE for New Holland Equipment Catalog

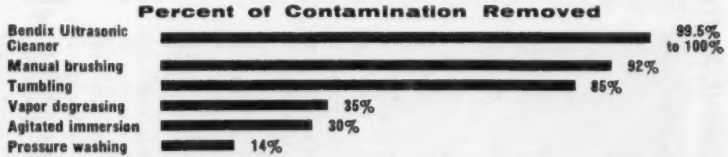
J. HOLLAND & SONS, INC.
276 SOUTH NINTH STREET • BROOKLYN 11, N. Y.

Radioactive tracer tests *prove* Bendix ultrasonic cleaner up to 86% more efficient



The Bendix Ultrasonic Cleaner *does a far better job of cleaning processed parts than any other known method.* On-the-job use is demonstrating that fact every day. And laboratory tests *prove* it beyond question.

One of many laboratory tests we made to check cleaning efficiency used radioactive isotopes as "tracers." First, we incorporated these isotopes into an insoluble buffing compound which was baked on sixty stainless steel cylinders for 4 hours at 400°F. Before cleaning, all cylinders were checked by Geiger counter for radioactivity. Groups of 10 cylinders were then cleaned by the different processes. Again they were checked for radioactivity. And results showed the Bendix Ultrasonic Cleaner *up to 86% more efficient.*



In addition, the Bendix Ultrasonic Cleaner* makes astounding savings in labor and solvent costs.

Do you know what contamination is costing you? Our Customers' Service Laboratory will be glad to show you how *really clean* a part can be. Write today.

Division of

THE NAME Bendix AVIATION CORPORATION MILLIONS TRUST

PIONEER-CENTRAL

**Available in capacities up to 12" in diameter and 12" in depth for use in cleaning metals, glass, rubber, plastics, ceramics, etc.*

... now serving industry through **ultrasonics**

2700 Hickory Grove Road
Davenport, Iowa

Export Sales: Bendix International Division, 205 E. 42nd St., New York 17, N.Y.

paint heater can be combined in countless ways to meet all types of job requirements.

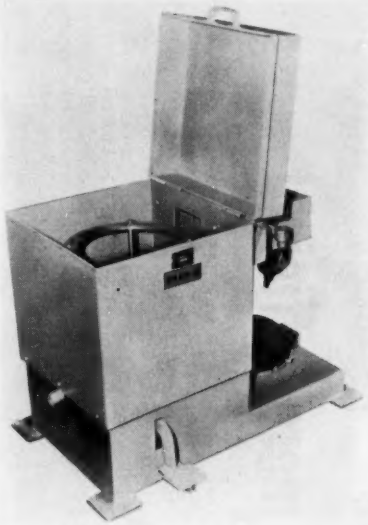
Additional information and literature about the paint heaters may be obtained from the DeVilbiss Company, 300 Phillips Ave., Toledo 1, Ohio, or by circling No. 4 on Reader Service Card inside back cover.

Centrifugal Dryer

After 5 years of successful field tests, Metal Finishing Manufacturing Corp. is releasing for general distribution the new Placo Centrifugal Dryer.

With a speed of 865 r.p.m., this dryer will superspin a load of 50 pounds. High centrifugal force holds parts immovable to give smooth lustrous dried surfaces on plated, lacquered and Japanned parts, with a minimum of scarring or marring.

Only 32½ inches high, the unit occupies only 25 inches by 43 inches of floor space. All parts are accessible for inspection, and a minimum of maintenance is required. A machined brake plate applies a leverage of 4½ to one on a 3-inch brake, which makes for quick and effortless stopping.



Placo Centrifugal Dryer

Made of ½ inch steel plate, the Placo unit was designed to stand up to the greatest abuse. A heavy drive shaft mounted on Timken roller bearings is driven by a 3 phase 220/440 volt, 1 h.p. 60 cycle a.c. Fairbanks-Morse motor. An explosion proof motor and switch, and heating units for gas or steam are available at moderate extra cost.

Additional information can be obtained by writing to Metal Finishing Manufacturing Corp., 89 N. 11th Street, Brooklyn 11, N. Y., or by circling No. 5 on Reader Service Card inside back cover.

UDYLITE SERVICE DOESN'T COST—IT PAYS

These are cost cutting days—and it will pay you to investigate Udylite's free services to the plating industry.

LOOKING INTO THE FUTURE?

The Udylite Research Corporation was founded to plan for tomorrow. We can help you with your five-year or ten-year program. It costs you nothing to find out. Write to—

WORLD'S LARGEST PLATING SUPPLIER

THE Udylite CORPORATION DETROIT 11, MICHIGAN

For a real good polishing job use

Keystone TURKISH Emery

FRESH SUPPLY AVAILABLE

KEYSTONE EMERY MILLS *Write for Sample* 4316 Paul St., Phila., Pa.

Before using ZORBALL, Academy Plating had to scrape tallow, grease and abrasive from their polishing-room floor. Even steam cleaning failed to budge deposits.

After using ZORBALL, Academy Plating once again has *clean, safe* floors. No scraping is required. All that's needed is to spread and sweep up ZORBALL daily.

ZORBALL ends floor scraping at Academy Plating Co.

"PREVIOUS to the use of ZORBALL on our polishing-room floor, we used scrapers to remove the buffing compounds consisting of tallow, grease and abrasive which had accumulated," reports Herbert Mancini, superintendent, Academy Plating Company, Newark, N.J.

"We also tried a steam-cleaning machine using an alkaline detergent, but it failed to remove these deposits. However, three weeks after applying ZORBALL, the unsightly and dangerous condition was cleaned up by the traction of the polishing operators' shoes on the floor. No labor was required except the daily spreading and removal of the ZORBALL!"

The safest, lowest use-cost floor absorbent known, ZORBALL absorbs oil, water, paint, chemicals, yet remains skidproof and nonflammable. Dried out, ZORBALL can be re-used without mudding, caking or dusting. Ask your Wyandotte representative or jobber for a sample or demonstration, today! *Wyandotte Chemicals Corporation, Wyandotte, Michigan, Also Los Nietos, California.*

Wyandotte CHEMICALS

Helpful service representatives in 138 cities in the United States and Canada

Black Instrument Lacquer

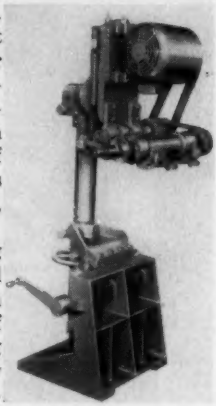
Pyroxylin Products, Inc., Chicago 32, Ill., has introduced a black lacquer of considerable interest to manufacturers of instruments. Called "Pyroxcote 5606," the product gives maximum blackness at grazing incident angles. In addition, the lacquer handles in the conventional way and can be applied by spray, brush or machine coating.

For further data circle No. 6 on Reader Service Card inside back cover.

Polishing and Buffing Head

Hammond Machinery Builders, Inc., 1622 Douglas Ave., Kalamazoo, Mich., has announced the addition of Model 50-99 Polishing and Buffing Head and Stand Unit to the line of finishing machinery produced by the company.

Model 50-99 is available with a 3, 5, or 7½ h.p., 1750 r.p.m. motor, or a 10 h.p., 3500 r.p.m. motor. Net weight of over 1400 pounds assures vibrationless operation and uniformity of finish on parts being processed, it is claimed.



Hammond Model 50-99 Polishing and Buffing Head and Stand Unit

The Polishing and Buffing Head has a maximum "float" action of 4 inches, allowing the head to follow the surface of irregular parts. Flat surfaces can also be finished without using the floating action. A power wheel feed can be furnished.

The Model 50-99 Head is equipped with an ammeter, so that the amount of work being done by the head can be determined.

For further data circle No. 7 on Reader Service Card inside back cover.

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PRE-PLATERS or DRIERS
CHLORINATED SOLVENT STILLS
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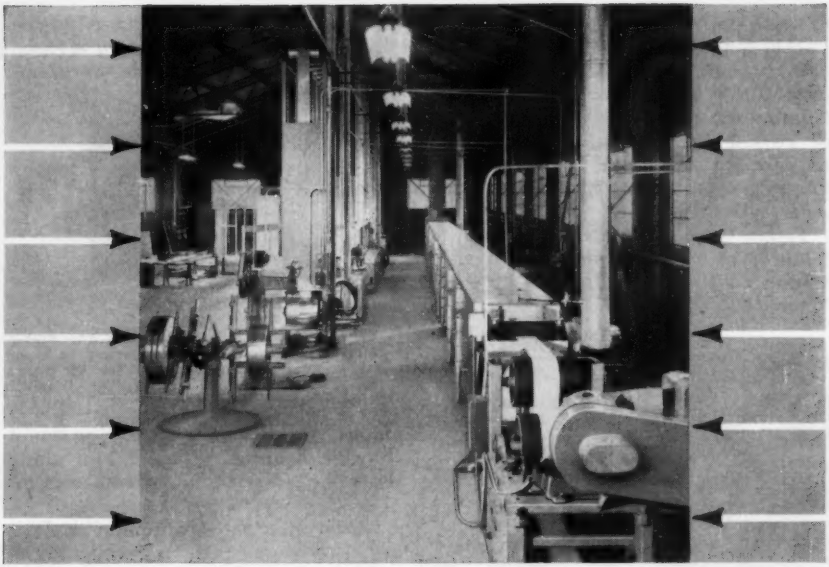
MECHANICAL PROCESS CO., INC.
Box 88 South Orange, N. J.

Pretreatment for Enameling of Aluminum

Parker Rust Proof Company, Detroit, has developed "Parker Pre-Namel 420," a simple, economical treatment for aluminum which is said to provide excellent adhesion for porcelain enamel.

Since the adhesion of porcelain enamel on untreated aluminum is poor on the alloys normally used, it is necessary to apply a chemical coating before application of the enamel. Difficulty in preparing the aluminum for porcelain enamel had previously discouraged many potential users.

The manufacturer states that pre-



Don't Let Small Space Deprive You of ROLLACOATING Speed and Economy

Here's one way Gasway engineers adapted continuous ROLLACOATING to restrictive length requirements. By developing a U-shaped unit, they U-tilized available space for double-duty effectiveness. The strip passes through an elevated cross-over, at rear. Feed and rewind are virtually side by side for added convenience of operators.

Don't take it for granted that limited space makes efficient ROLLACOATING out of the question. Vertical installations, multiple parallel lines operating at slower speeds, and other Gasway innovations work wonders in restricted areas.

Engineering initiative, however, is just one "plus" of dealing with the leader, for Gasway ROLLACOATING quickly pays for itself, as well as for building alterations. A continuous unit, as illustrated, can perform every function from cleaning and treating to coating both sides, baking, and re-coiling—all in a single pass. It gives you fastest-of-all paint application without wasting a precious drop. Write for the whole savings story.

Through speedy metal coating, then forming, ROLLACOATING has revolutionized manufacturing methods in industry after industry. We'll be glad to give you full facts on continuous units as well as on individual sheet coaters.

Gasway CORPORATION

6463 N. RAVENSWOOD AVE.
CHICAGO 26, ILLINOIS

firing is not necessary when using the Parker Pre-Namel 420 treatment. The bath is controlled by simple chemical tests and can be used indefinitely. Elimination of prefiring with the use of Parker Pre-Namel 420 represents an effective increase of 25 per cent or more in production with existing furnace equipment.

Pemco Corporation, a leading manufacturer of frit, has cooperated with Parker in the testing of Parker Pre-Namel 420 through the various stages of its development.

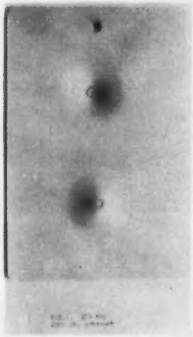


Fig. 1—P. E. I. impact test, in which a 3½ pound weight is dropped onto a ½ inch steel ball, shows how tightly porcelain enamel is bonded to metal, when Parker Pre-Namel 420 has been used in the process.

Results of control tests indicate the bonding effectiveness of Parker Pre-Namel 420. In the impact test a 3½ pound weight was dropped from a height of 12 inches onto a ½ inch steel ball on the test panel (Fig. 1). The porcelain enamel cracked only slightly, and virtually no ground coat parted from the metal.

The accelerated spalling test was used to test the resistance of the enamel system to weathering. After the edges were sheared to ensure a clean interface, enameled panels were immersed in a 5 per cent ammonium chloride solution. Enamel loss along the edges, after 96 hours test, was nil (Fig. 2).

Fig. 2—This panel, porcelain enameled after Parker Pre-Namel 420 was used, was immersed in 5 per cent ammonium chloride solution for 96 hours. Enamel loss along the edges (spalling) is nil.

More complete information on Parker Pre-Namel 420 is available by writing Technical Division, Parker Rust Proof Company, 2172 E. Milwaukee Ave., Detroit 11, Michigan, or by circling No. 8 on Reader Service Card inside back cover.

Materials Handling Tray

The Chas. Wm. Doepke Mfg. Co., Inc., has announced the addition of a standard tray to its NesTier materials handling line. The tray, which has been designated Model No. 224, is also

MASKING TAPE
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Getting the right answers to space requirements, production uniformity, current economies, and reduction of rejects will pay off in bigger profits. Our engineers have years of "know-how." They'll be glad to share their experience — free. Just write to—
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Now... get more for your anode dollar!

NEW ANACONDA "PLUS-4" ANODES*

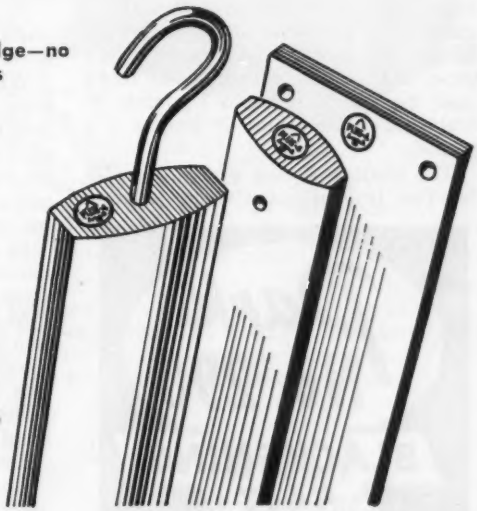
(PHOSPHORIZED COPPER)

+1 Freedom from anode sludge—no "bagging" or diaphragms required.

+2 No copper build-up in solution.

+3 Exceptionally smooth, heavy cathode deposits.

+4 10% to 15% more cathode deposits per pound of anode.



It has been discovered that carefully controlled amounts of phosphorus, together with minute amounts of other elements in electrolytic copper, make anodes of vastly superior quality for acid plating. ANACONDA "PLUS-4" Anodes are available in all the standard sizes and forms at no increase in cost over ordinary anodes. Look for the stamp "PLUS-4" on the anodes you buy.

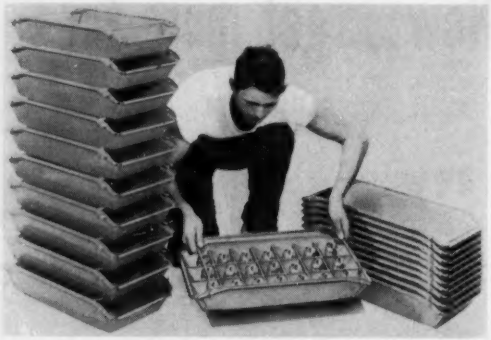
We'll be glad to supply additional information, in detail, without obligation. Just write to: The American Brass Company, Waterbury 20, Conn.

*For use under Patent No. 2,689,216 54160

ANACONDA® **"PLUS-4" ANODES**

made by THE AMERICAN BRASS COMPANY

NesTier Model No. 224 Materials Handling Tray



the first tray designed to tier in rigid stacks, which permits transporting large unit loads on skids or pallets.

Designed for handling parts not adapted to deep boxes, the new die-made Model No. 224 NesTier is available in either cold rolled steel or aluminum. It measures 22¾ inches in length, 4¼ inches high and 11 inches wide. Made of 18-gauge (0.047 inch) steel the new tray weighs 7 pounds; of 0.064 inch aluminum it weighs 3½ pounds.

The shallow design of the No. 224 NesTier tray allows a single layer of parts to be handled without wasted space.

When trays are tiered, each unit rests on the upraised handle of the tray below. Thus, contents are protected from damage and, because of double-hopper ends, remain both visible and accessible. Empty trays nest, saving valuable floor space.

In assembly applications, a larger number of trays can be tiered in any given height because of shallow design.

Model No. 224 can be used in conjunction with powered belt, overhead, wheel and roller conveyors. In addition, large unit loads can be tiered on pallets for transporting by powered or hand lift trucks.

Descriptive literature will be sent upon receipt of publication inquiry or letterhead request.

For further data circle No. 9 on Reader Service Card inside back cover.

Park No. 290
BLACKENING SALT

Black Oxide finishing for rust resistance and decorative parts. Speedy black coating in water solution with no electric current. Permanent black finish on ordnance parts, tools, aircraft, bearing races. Dazzling black decorative finish for television cameras, business machines, hardware, metal screens and machine parts. Excellent bond for paints and enamels. Simple one bath operation. Write for bulletin H-16. Park Chemical Co., 8078 Military Ave., Detroit 4, Mich.

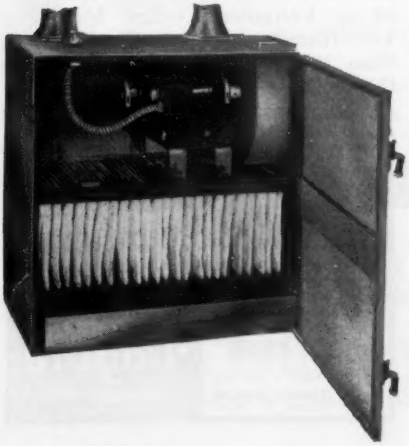
Barrel Finishing Abrasive

An abrasive product for barrel finishing has been announced by The Exolon Company, 943 East Niagara Street, Tonawanda, New York. The material is made from selected grades of aluminum oxide and processed to remove all sharp edges which might scratch the work. Sizes range from two inches down.

FOR THE FINISHING TOUCH

Hisey Buffing and Polishing Machines . . . the equipment you need to apply the finishing touch. The best finish on the polished product is largely dependent on the wheel operating at proper speed and without vibration. Operators know **Hisey** for these performance qualities. Too, operators like **Hisey** Buffing and Polishing Machines because they offer plenty of foot room and freedom of operation about the wheels. Production is fast and with minimum of effort.

All moving parts subject to wear are made with liberal reserve capacity and of materials scientifically selected. **Hisey** is a quality product and offers maximum production, low labor cost and minimum maintenance. Made in a wide range of types and sizes from ¼ H.P. bench mounted to 50 H.P. capacity.



HISEY DUST COLLECTOR

Bag type Dust Collector, made in three sizes. For use with all **Hisey** Buffing and Polishing machines. Cyclone type also available in three sizes.

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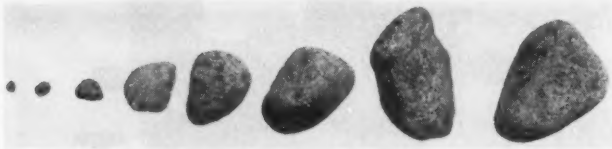

Exolon Barrel Finishing Abrasive, illustrating range of sizes.

The success of Exolon Barrel Finishing Abrasive is ascribed to its toughness and its hard abrasive surface. It is made in an electric arc furnace from bauxite which is melted and forms hard aluminum oxide crystals with facets in every direction.

Constant use of the material does not impair the abrasive quality, but does somewhat reduce the size, it is stated.

Barrel finishing operations are speeded up and quality is improved with this new Exolon abrasive, the manufacturer claims.

For further data circle No. 10 on Reader Service Card inside back cover.

Phosphate Conversion Coating

Municipal Steel Corp., Chemical Div., 1225 Broadway, New York 1, N. Y., has announced the availability of FerRoSeal, a liquid which converts rust into a protective iron phosphate coating. New to America, FerRoSeal is a patented process and the registered trade name for one of the products developed by the Walterisation Co., Ltd., of Croyden, England.

According to the distributor, a rusted surface can be treated with FerRoSeal to form a sound base for paint. It is claimed that this process eliminates the need for sand or shot blasting, acid pickling, and requires only the wire brushing of loose scale and rust.

FerRoSeal is claimed to work in harmony with coal tar products, asphaltum, gilsonite, vinyls, silicones, neoprene, zinc base materials, and other coatings as well as paint.

For further data circle No. 11 on Reader Service Card inside back cover.

Reversing Switch

A heavy duty double pole, double throw switch for reversing high currents at low voltage has been announced by Columbia Electric Mfg. Co., 4535 Hamilton Avenue, Cleveland 14, Ohio. It is rated 3000 amperes and is the latest addition to an existing line of reversing switches rated 300, 500, 1000

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IS YOUR ELECTRICAL SYSTEM EFFICIENT?
We have recommended new equipment to many manufacturers that has paid for itself in a matter of months. Why not let us check your power set-up? Write to—
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INDUSTRIAL is an organization of chemical and mechanical engineers and technicians specializing in the design and building of equipment for the metal finishing industry since 1927. The treatment of metal finishing wastes is also our business. Complete systems are engineered to meet any waste treatment problem. Write for full particulars.

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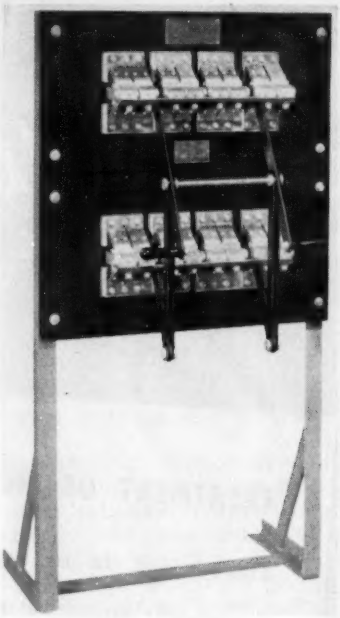
PRESSURE FILTERS
ION EXCHANGERS
RUBBER LININGS
CENTRIFUGAL PUMPS
CORROSION TEST CABINETS
HEAT EXCHANGERS

and 2000 amperes for use on direct current up to 15 volts.

The "3000" ampere cam type switch is designed primarily to reverse the current flowing through a plating tank. When specified it can be furnished for use as a series-parallel switch for double commutator generators. The unit consists of two ebony asbestos panels mounted on angle iron supports, with manually operated handle of sufficient leverage for ease of operating the entire switch mechanism. By placing the handle in a neutral position the line current can be disconnected.

A total of sixteen heavy duty toggle switches are mounted on the panels, eight for each current direction. The cam action of the switch mechanism assures positive contact pressure. Contact surfaces are automatically cleaned by the inherent wiping action of the laminated copper moving contacts. Switch is rear connected, and is furnished complete with reversing jumpers and four terminals for incoming bus bars. Stationary contacts are replaceable.



Columbia 3000 ampere Double Pole, Double Throw Reversing Switch.

For further data circle No. 12 on Reader Service Card inside back cover.

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Performance - Proved
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Masking Tape

White or pastel colored surfaces which are extremely susceptible to residue and discoloration left by holding and masking tapes will come through finishing operations unmarked by a tape especially developed for this application by Behr-Manning Corp., Troy, New York.

Called "Behr-Cat No. 115 Stain-Resistant Masking Tape," it is said to be best suited for use on light-colored finishes like those on refrigerators and

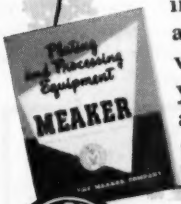
MEAKER

PLATING MACHINES

Semi-automatic and full automatic plating machines justify their cost, usually in a surprisingly short time, by savings in man power, floor space, and by eliminating the cause of many undesirable conditions in the plating room. Meaker machines fulfill the most exacting requirements and have demonstrated their extremely low maintenance cost over the years.

Meaker machines are designed for maximum flexibility, lending themselves to changes in product and processing techniques. A simple and positive adjustment provides for variations in production or plating specifications.

For the occasional job where a special and complicated treatment is needed requiring an intricate handling function, which even a unit as flexible as the Meaker machines cannot provide, our engineers, drawing on more than fifty years' experience in this field, will carefully analyze the problem and design equipment to satisfactorily accomplish the desired results.



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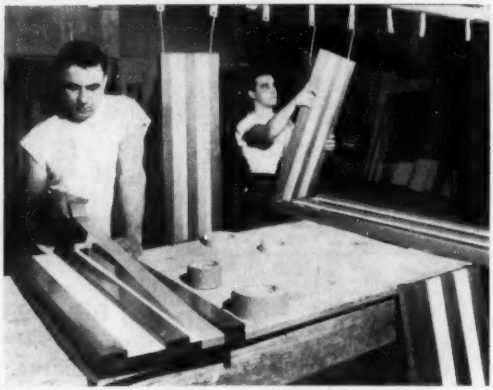

One application of Behr-Cat No. 115 Stain-Resistant Masking Tape in protecting painted surfaces.

deep freezers, kitchen stoves and cabinets, washing machines, and pastel colored automobiles (two-tone work). Made with a flexible crepe paper backing, it will adhere equally well to contours and to flats. No wetting or preliminary treatment is necessary because the adhesive is pressure-sensitive. For further data circle No. 13 on Reader Service Card inside back cover.

Cleaning and Phosphatizing Compounds

The Fosbond line of the Pennsylvania Salt Manufacturing Company now includes all chemicals necessary to apply iron or zinc phosphate coatings to steel or zinc surfaces for improved paint adhesion. Used in all fields where metals are painted, Fosbond is said to provide durable coatings through fast, trouble-free processing operations.

An important component of the Fosbond Process is Pennsalt's Actidip R, a new activating compound. The incorporation of Actidip in alkaline cleaners eliminates emulsion cleaning previously considered necessary to refine the crystal size of zinc phosphate coatings. In many operations the quality of coating is improved and coating costs are reduced by activating with Actidip.

Recent additions to the Pennsalt Fosbond line include Fosbond 10, 40, 60, and 61 compounds for phosphatizing of zinc and the application of heavy zinc coatings to steel. For cleaning and phosphate coating in one operation Fosbond 20 and 22 compounds are available.

New and improved phosphatizing and lubricating compounds have also been added to Pennsalt's Fos Process

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Take your problems to Udylite. We have a pilot plant where we will check your plating problem and make recommendations. It will save you from future costly mistakes. This service is free! Write to—
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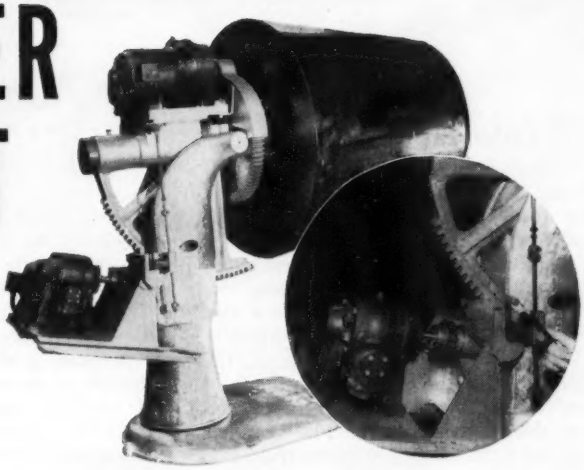
POWER TILT

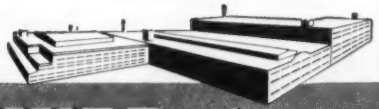


for

safety • economy • convenience

Fingertip tilting brings you the advantages of faster tumbling cycles, reduced operator fatigue and savings of floor space in your finishing department. Globe's new tilting mechanism enables your operator to quickly move the barrel to pre-selected or manually selected operating position by means of a simple, 3-position reversing control.

Write for Tumbling Barrel Bulletin B-9



WHAT'S YOUR FINISHING PROBLEM?

Let HUPP's experimental engineering service analyze your parts finish needs. Send samples of parts and completed piece to show desired finish. HUPP will provide detailed cost-saving finishing recommendations. Write today! No obligation, of course.

HUPP CORPORATION

GLOBE STAMPING DIVISION

1250 WEST 76th STREET • CLEVELAND 2, OHIO

SERVING INDUSTRY SINCE 1907

line. This process is widely used in cold extrusion of metals and in wire and tube drawing as a lubricating system to prevent galling and to reduce tool and die costs.

For further data circle No. 14 on Reader Service Card inside back cover.

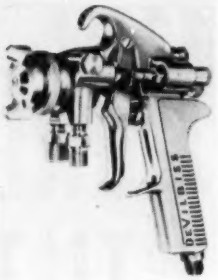
Catalyst Spray Gun

A completely new field of spray finishing is expected to be opened with the marketing of the DeVilbiss Catalyst Spray Gun.

Designed to spray plastic resin and catalyst simultaneously, the new DeVilbiss gun is claimed to assure a uniform mixture of resin and catalyst.

With the new DeVilbiss gun, the resin is fed to the gun through the fluid line and the catalyst is introduced through the air stream. The gun has but one head. When the gun trigger is actuated, catalyst and resin meet outside of the air cap and are atomized uniformly so the correct amount is applied to the surface being sprayed.

DeVilbiss Catalyst Spray Gun



To assure a uniform mixture, DeVilbiss engineers have installed a single pressure control for the resin and a double pressure control for the catalyst which is the governing agent in setting the resin. Dual atomizing air pressure control is also provided to ensure uniform results regardless of main line pressure variation.

As formulations progress, the gun is expected to find wide usage in the automotive, marine, furniture, appliance and aircraft industries.

Further information about the gun may be obtained by writing to the DeVilbiss Company, 300 Phillips Ave., Toledo 1, Ohio, or by circling No. 15 on Reader Service Card inside back cover.

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#4 OLS
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PLATE SMALL PARTS
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For plating die castings, stampings, screw machine parts, castings or any small parts in bulk, this Daniels OLS Oblique Plating Barrel is unsurpassed.
Write for complete details today
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Electroplating and Polishing Equipment and Supplies
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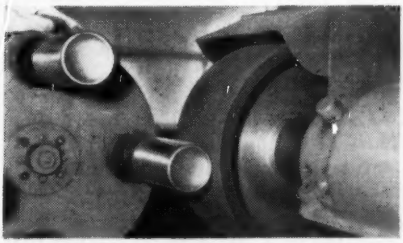
Room Temperature Cleaner

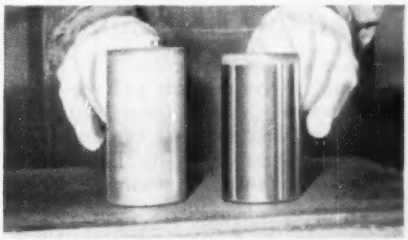
A combination "cold" cleaner has been developed by E. F. Houghton & Co. of Philadelphia.

Advantages claimed for this room temperature, water-emulsion cleaning combination of Houghto-Clean 402-403 are: thorough removal of most generally encountered shop soil; protection of freshly cleaned surfaces from rusting between operations or in tempor-

How would you solve it?

(1) Production Problem: To cut unit costs of grinding and polishing stainless steel whip-cream dispenser cans. Nilsen Mfg. Co. had been jobbing out the cans to an outside source, paying a high .08¢ per can, due to old-fashioned methods, labor, material and delivery costs.





(2) Solution: A 3M Representative recommended that this Addison, Illinois, manufacturer install the 3M Method, using Grit #180 Resin Bond Belts running over a special contact wheel. Cans to be finished were placed on automatic work holders.

(3) Results: An immediate reduction in polishing costs. By installing the 3M Method, and doing the work themselves, Nilsen Mfg. Co. cut costs to only $.0125 per finished unit . . . a saving of $.0675 per can! A 3M Representative can help you solve your grinding and finishing problems, too. His services are available without cost or obligation.

3M ABRASIVES

Made in U.S.A. by Minnesota Mining and Mfg. Co. General Offices: St. Paul 6, Minn. In Canada: London, Ont., Can. Export: 122 E. 42nd St., New York City. Makers of "Scotch" Pressure-Sensitive Tapes, "Scotch" Sound Recording Tape, "3M" Adhesives, "Underseal" Rubberized Coating, "Scotchlite" Reflective Sheeting, "Safety-Walk" Non-slip Surfacing.

Want More Information?

Minnesota Mining & Mfg. Co.
Dept. PF-114, St. Paul 6, Minn.

☐ *Send me free booklet: "Case History Reports on 3M Abrasive Belts"*
☐ *Have 3M Representative Call*

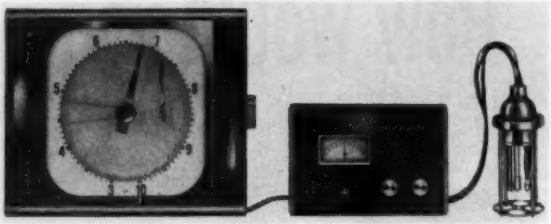
NAME_____ **TITLE**_____

COMPANY_____

ADDRESS_____

CITY_____ **ZONE**___ **STATE**_____

pH Instrumentation System



ary indoor storage; elimination of heating system costs; and improved working conditions by the elimination of atmospheric conditions associated with hot alkaline cleaning methods.

The Houghto-Clean 402-403 combination is easy to use and mixes readily in economical proportions with cold water to provide efficient still tank cleaning, it is claimed. For complete details, contact E. F. Houghton & Co., 303 W. Lehigh Avenue, Philadelphia 33, Pa., or circle No. 16 on Reader Service Card inside back cover.

pH Instrumentation System

Complete systems for pH recording and control, which incorporate the new Beckman Model W amplifier, have been announced by The Bristol Company, Waterbury, Connecticut.

These pH instrumentation systems include a Bristol Electronic Dynamaster Potentiometer recorder or controller, a Beckman Model W Amplifier, electrode assemblies in either flow or immersion types, and a variety of final control elements for the addition of gaseous, liquid, solid, or slurried reagents.

Bristol's Bulletin Q1304, giving full engineering specifications and illustrations of each component of the systems, and showing methods of installing pH instruments in a number of different applications, is available on request.

For further data circle No. 17 on Reader Service Card inside back cover.

Alkaline Rust Remover

Enthone, Inc., 442 Elm Street, New Haven, Connecticut, has announced the development of a non-electrolytic alkaline derusting compound. The product, known as Alka-Deox 114, is stated to be a free flowing powder that is used in a concentration from 1 to 3 lb./gal. of water. When a solution of the salts is heated to from 180 deg. F. to the boiling point, and rusty metal

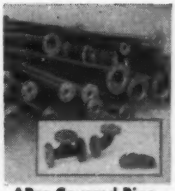
UDYLITE SERVICE
DOESN'T COST—IT PAYS
These are cost cutting days—and it will pay you to investigate Udylite's free services to the plating industry.
TAKE SOLUTIONS FOR EXAMPLE:
We maintain a customer laboratory for the testing of your solutions. Our free services will save you money. Why not find out for yourself. Write to—
WORLD'S LARGEST PLATING SUPPLIER
THE Udylite CORPORATION

McKeon's "Liquid Sulphur"
Economical, satisfactory for
STRIPPING COPPER
and
OXIDIZING COPPER AND SILVER
Literature on request
Sulphur Products Co., Inc.
228 McKEON WAY GREENSBURG 6, PA.

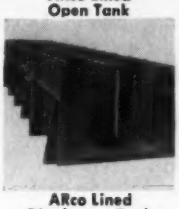
• To electroplaters and plating department heads in every section of the nation, the name ARco is symbolic of broad engineering knowledge . . . advanced methods and equipment . . . bringing top plating results.

Corrosion-resistant ARco rubber coverings are applied to tanks and accessories, Diaphragm Systems, Parts Separators, Air Agitation Systems, Grids and Screens, Ventilation Equipment, Pipes and Fittings, Materials Handling Equipment. For expert advice on economical, efficient rubber applications to electroplating equipment, call on ARco Engineers. Their help is offered to you without obligation.

ARco Lined Open Tank



ARco Covered Pipe, Fittings



ARco Lined Diaphragm Tank

ARco Lined "Handy-Tanks"

ARco Lined Tumbler

ARco Insulated Handling Equipment

ARco Materials, Equipment, Engineering and Service . . . Vital To Better Electroplating

. . .assure improved plating quality and production!

AUTOMOTIVE RUBBER CO., INC.
12564 BEECH ROAD • DETROIT 39, MICH.
Manufacturers • Designers • Engineers

•

ARco RUBBER PROCESSORS
4033 Homestead Road
Houston • Texas

ARco FIELD SERVICE UNITS

ARco Field Service Engineers bring their "know-how" and equipment right into your plant. Permanently installed or large equipment can be fabricated and covered on the job by Field Service Units. (Licensed Saran Applicators).

AUTOMOTIVE RUBBER CO., INC.
12564 Beech Rd., Detroit 39, Mich.
Please rush me ____ copies of your "Diaphragm Tanks Promote Plating Progress."
Name_____
Firm_____
Street_____
City_____ State_____

immersed in the solution, rapid removal of rust is accomplished.

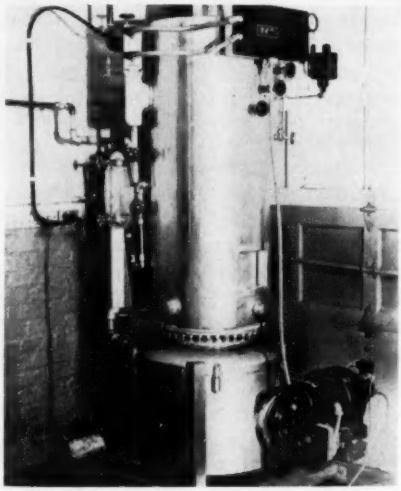
The manufacturer states that there is no attack upon the base steel, leaving it clean and bright. Paints, organic coatings and other surface contaminants are removed together with rust. Due to the lack of necessity to use electric current, the product is stated to be ideal for bulk derusting of steel and cast and malleable iron.

A technical bulletin describing Alka-Deox 114 and its uses will be sent on request.

For further data circle No. 18 on Reader Service Card inside back cover.

Steam Boiler

An automatic process steam boiler, designed for 100 pounds steam pressure, has been developed by Alert Boiler & Mfg. Co., 9661 Robson, Detroit 27, Michigan. It is built with all necessary safety combustion controls, pump and fire controls.



Steam Boiler

It also has knapsack type complete return system with condensate tank, automatic float operated makeup valve including boiler feed pump and motor. All electrical parts are interwired. All mechanical parts are interpiped. All boilers furnished with gas burner or oil burner, with refractory installed. Manufactured in 12 sizes from 2 to 50 horsepower.

For further data circle No. 19 on Reader Service Card inside back cover.

barrel nickel brightener cuts your brightening costs—concentrated to quadruple strength — shipping weight is cut 275%. You don't ship, store or handle water! No deposits, no carboy returns. A capfull is enough for a barrel of nickel.

Platers Research CORPORATION

Nickelite boosts corrosion resistance of barrel nickel 30 to 100% by actual salt spray test.

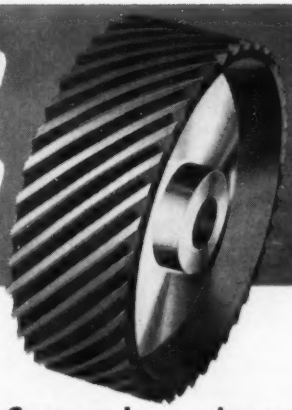
59 EAST 4TH ST.
NEW YORK 3, N. Y.

Stripper for Epon Resin-Type Coatings

Northwest Chemical Company, 9310 Roselawn, Detroit 4, Michigan, has announced Liquid Stripper No. 9—a compound designed specifically to remove a wide variety of Epon Resin base coatings.

The manufacturer states that Li-

CUTS COSTS like Magic!



Chicago Rubber Company's amazing new R54 contact wheel cuts better—faster—longer and will substantially reduce your grinding and polishing costs 3 ways.

This precision machined and accurately balanced wheel is easily and quickly knocked down and reassembled for tire replacement or change.

- Replace only the rubber tire when necessary instead of the entire wheel.
- Choose from a complete assortment of tire treads for different grinding operations, still using the same wheel.
- And as usual Chicago Rubber Company's R54 contact wheel allows you to get the most wear from your abrasive belt—more than you ever got before.

There is a replaceable rubber tire with proper tread for every grinding requirement and in a wide variety of durometer ratings. Write for descriptive literature.

"IT'S THE WHEEL THAT DOES THE WORK"

CHICAGO RUBBER COMPANY, INC.

Main Office & Factory
2620 N. Clybourn Ave. Chicago
Makers of the COSMOWHEEL

quid Stripper No. 9 will effectively strip Epon finishes from both ferrous and non-ferrous metals at temperatures ranging from room to 190 deg. F. at time cycles from two minutes to two hours. With the exception of aluminum, which it will etch, Liquid Stripper No. 9 will not attack the base metal. It is non-corrosive and may be used in plain steel tanks.

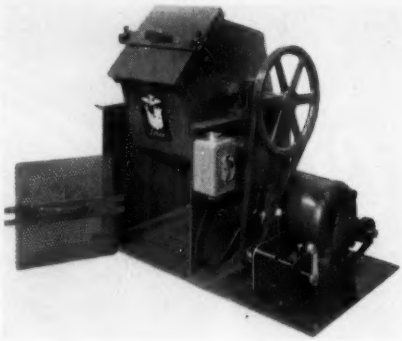
Liquid Stripper No. 9 is said to be easily controlled. As with any high pH solution, it should be handled with care. Number 9 presents no fire hazard in that it will not flash even at boiling temperatures but should be used with adequate ventilation.

Northwest will gladly process Epon finished parts whether clear or pigmented, single or multiple coated, air dried or baked to demonstrate the effectiveness of Liquid Stripper No. 9.

For further data circle No. 20 on Reader Service Card inside back cover.

Bench Model Tumbling Barrel

Lord Chemical Corporation, York, Pa., has announced the Lorco Model 100 Bench Tumbling Barrel. Built entirely of heavy gauge steel, the Lorco Model 100 occupies only 14 x 24 inches of bench space. The 7½ x 12-inch, plastic lined, steel drum rotates on double shafts mounted on heavy channels carried by self-aligning ball bearings. The 6 x 7-inch steel door, 3/16 inch thick is neoprene lined. A sturdy perforated metal rinse door is included.



Lorco Model 100 Bench Tumbling Barrel

The Lorco Model 100 is powered by a ¼ h.p. motor which operates on 110 volts at 60 cycles. The Lorco Model 100 offers two different speed controls—the Smith Gear Reducer or the Revco Automatic Transmission. The Smith Gear Reducer with three step pulleys offers speeds of approximately 19, 35, and 58 r.p.m. The Revco Automatic Transmission has an infinite speed variation in either direction from 0 to approximately 65 r.p.m.

For further data circle No. 21 on Reader Service Card inside back cover.

Portable Sandblast Gun

—Complete— simply connect to air line

Rugged • Efficient • Guaranteed $27.50

A Real Performer Handy in any shop

LINDBERG PRODUCTS CO. Box 885 P Los Gatos, Calif.

UDYLITE SERVICE DOESN'T COST—IT PAYS

These are cost cutting days—and it will pay you to investigate Udylite's free services to the plating industry.

OUR FIELD SERVICE STAFF IS LARGE

In fact, largest in the electroplating field. That means you get frequent service check-ups. We maintain Udylite equipment at top performance.

It's all free, of course. Just another plus when you buy from Udylite.

WORLD'S LARGEST PLATING SUPPLIER

THE Udylite CORPORATION DETROIT 11 MICHIGAN

ROCKFORD VARNISH

RV

ROCKFORD, ILLINOIS

MANUFACTURERS OF PROTECTIVE AND DECORATIVE FINISHES

Do you like to look into those beautiful eyes? Then . . . look into the products of Rockford Varnish Company: all the standard finishing materials, accurately compounded, in any desired colors, shipped reliably in quantities to suit your schedules — PLUS a number of interesting and useful "specialties" that can put a new look in your finishing specifications. Try us.

Affiliate: GORDON BARTELS CO., *Roller Coating Specialists*

Soak Tank Cleaners

Marking ink on aluminum can now be quickly removed by soaking with a new series of soak tank cleaners, "Vantrol 5617-A and Vantrol 5617-B," products of the Van Straaten Chemical Company, 546 W. Washington Blvd., Chicago. While they can quickly remove heavy, oily soils, they are unique in their ability to remove marking inks that have penetrated into porous oxidized aluminum surfaces.

One problem, for instance, often faced in the aircraft industry, has been that of removing markings from certain aluminum, such as 24ST, that has grayer oxidized finishes. Aluminum with bright, shiny surfaces usually does not present a problem.

The "Vantrol 5617" series, mixed at eight ounces per gallon and brought to a rolling boil, will remove these markings, as well as other oily soils, in from 10 to 20 minutes. The cleaners will not injure aluminum.

For further data circle No. 22 on Reader Service Card inside back cover.

UDYLITE SERVICE DOESN'T COST—IT PAYS

Udylite service begins with your first inquiry and continues as long as you need it. You are *not forgotten* after the sale. Udylite metal finishing "know-how" is always available at your request . . . and it makes no difference if your operation is large or small.

When you buy from Udylite you get "More Than A Pound." Udylite gives you these 6 important helps beyond outstanding equipment and tested supplies at no extra cost.

- A pilot plant where we check new plating problems and make recommendations.
- A Customer Laboratory for the testing of your solutions.
- Electrical Service for the latest in current usage recommendations.
- Field Service men who are regularly checking Udylite equipment now operating throughout the United States.
- Engineering Service to advise you regarding the best equipment to handle your new jobs.
- The new Udylite Research Corporation continually working to develop a new and better way of plating.

Call us in on any plating problem. Get these Udylite "More Than A Pound" services without cost or obligation.

THE Udylite CORPORATION DETROIT 11, MICHIGAN

WORLD'S LARGEST PLATING SUPPLIER

Buff for Buffing Copper

The Geo. R. Churchill Co., Inc., has announced a new type of cotton finger-type buff, called Type No. 150 DN, especially designed for buffing copper.

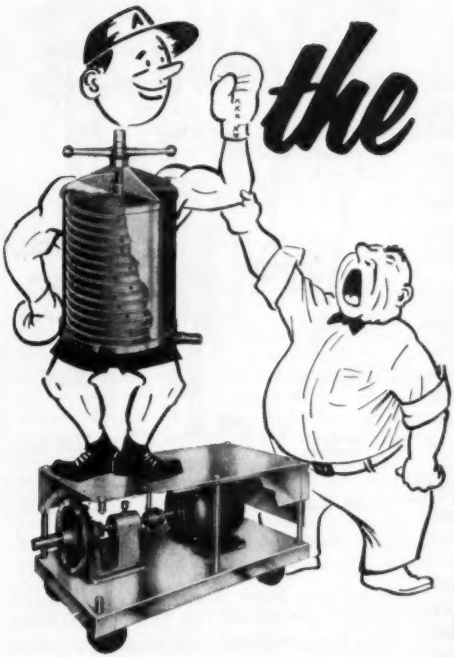
Churchill Type No. 150 DN Finger Buff

Each buff section, as may be seen from the illustration, is made with a double row of overlapped and staggered fingers. Thus the fingers of each adjacent section meld and fit together very compactly, which gives desirable continuity to the working face of the buff.

This specialized construction, developed specifically for the particularly smooth buffing operation required for copper and like metals, is reported to "absolutely eliminate all streaking and gouging" and "give the best finish obtainable."

Offered at competitive prices as the regular line of Churchill Finger Buffs, this entirely new No. 150 DN Churchill Buff is produced in all sizes from 6 inches to 18 inch diameters, for both hand buffing and automatic machines.

For further information, write to Geo. R. Churchill Co., Inc., 26 Churchill Lane, Hingham, Mass., or circle No. 23 on Card inside back cover.



the Winner

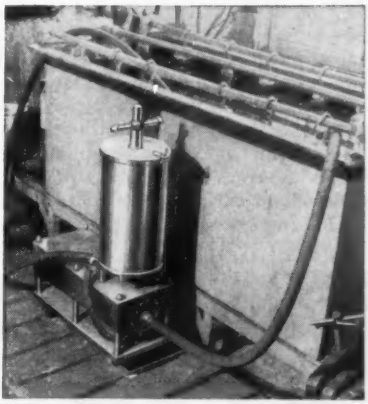
on all counts

against pitting, spotting, rejects and reworking

EVERY TIME

The Alsop "Sealed-Disc" Filter is a sure winner *everytime* that it's called on to knock-out dirt, sludge and even the invisible impurities from your Plating Solutions.

"Sealed-Disc" Filters remove more impurities with less effort and in no time at all. That's because they're designed to meet Plating room requirements. They're smaller than conventional filters, yet capable of handling equal volumes of solutions. It will pay you to invest in a *Winner* —"Sealed-Disc" Filter. You can depend on its proved "knock-out" performance for continuous or now-and-then operations. See your regular Plating Supplier or write for a Catalog—it's free.



You can depend on a "Sealed-Disc" Filter for better finished plated work with savings in time and labor. Use it on your acid dips, electro cleaners, and solvents too.

ALSOP
ENGINEERING CORPORATION

911 Keen Street • Milldale, Connecticut

Positive Filtration
FIRST STEP IN CUTTING COSTS

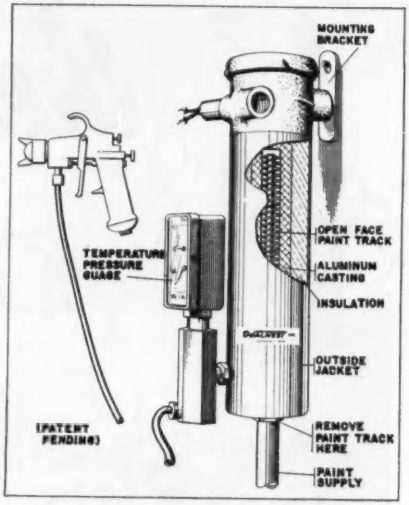
Electric Paint Heater

A removable paint track, one bolt assembly, no gaskets and no circulating pump or motor required, are exclusive features of a newly designed electric paint heater made by Dualheet, Inc., 3350 West 137th Street, Cleveland 11, Ohio. An air ambient hose is provided for maintaining spraying temperature in the line when the spray gun is not in use.

The compact paint heater, known as Model DH 125, is only three inches in diameter by eleven inches long, making it particularly useful where extreme portability is a major consideration. Where permanent installation is desired, it may be mounted on a wall of the spray booth.

Removal of only one bolt frees the entire paint track for quick, easy and thorough cleaning or for a fast change of colors. The track may be removed and replaced in a matter of less than five minutes without disturbing electrical connections, hose connections between heater and gun or heater mounting where the unit is fastened to the spray booth wall. Since there are no recesses to trap color, complete cleaning is assured. Elimination of gaskets disposes of any problems of leakage.

Heating capacity is 8 gallons of material per hour and the electrical capacity is 1250 W., at 110 or 220 volts. The heater comes complete with pressure gage and thermometer.



Model DH 125 Electric Paint Heater

For further data circle No. 24 on Reader Service Card inside back cover.

PAINT MIXER
MIRACLE PAINT REJUVENATOR
All paint restored to original consistency without opening the can.
2 minutes per gallon.
MIXERS AVAILABLE
¼ PT. to 55 GALS.
MIRACLE PAINT REJUVENATOR COMPANY
127 E. 9th St., St. Paul 1, Minn.
5 GAL. MODEL

Degreaser Fabricated with Nickel Plated Steel

Complete fabrication of industrial degreasing equipment with nickel clad steel is now being accomplished by Circo Equipment Company through the use of the new Bart Lectro-Clad nickel plated steel.

The Bart Lectro-Clad steel, manufactured by Bart Manufacturing Corporation, of Belleville, N. J., makes available deposits of nickel ranging from 0.007 to 0.020 inch thick regardless of the thickness of the steel.

The electrodeposited nickel, tailored to particular applications, offers excellent corrosion protection, and is be-

BEWARE

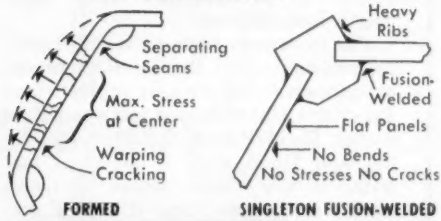
DANGEROUS CURVES!

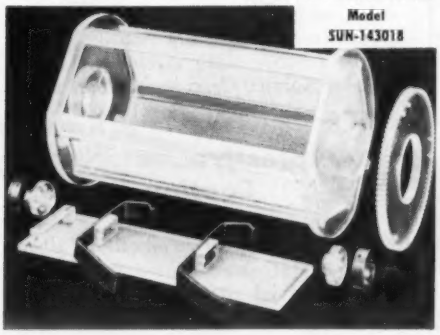
Especially in Plating Cylinders

Don't gamble on "formed shapes"! Demand Singleton fusion-welded, heavy-ribbed, flat-panel construction, *now the accepted pattern of the industry!* Here's the scientific truth about the biggest factor in the success or failure of your plating cylinders. It's not the material, it's the *construction!*

Plexiglas and Lucite have "plastic memory", say Rohm & Haas and Dupont. *Formed* plate, when heated beyond its softening point, tends to "*return*" *to its initial flat shape.* Severe internal stresses are set-up. Lead to warping, cracking, separating of seams.

No bends or stresses in Singleton construction





Only Singleton Plating Cylinders Offer Time-Proven Performance, Longer Life

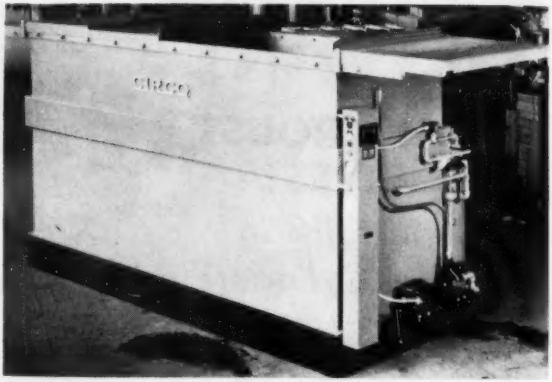
Here's the plating cylinder value which *tops them all!* Singleton "H-T Sincolite" Cylinders are rugged, heavy-ribbed, flat panel construction—fusion-welded throughout. Tested, proven superior in all plating cycles and processes, at *lower cost.* Not only the finest *engineered,* but also *opinioneered* by *plating men.*

Send for Bulletin RC-101, and your "official" card as a "Professional Opinioneer".

THE G. S. EQUIPMENT CO.

5317 St. Clair Ave., Cleveland 3, Ohio

ENdicott 1-0167, 1-3541



Circo Degreaser constructed from nickel plated steel.

ing used in all models of Circo degreasers, including the Circo Ultrasonic degreaser, whenever a nickel clad unit is specified.

For further data circle No. 25 on Reader Service Card inside back cover.

Rigid P.V.C. Large Diameter Tubing and Ducting

Kaykor Industries, Inc., Yardville, N. J., has announced the availability of Vyflex Rigid Polyvinyl Chloride Tubing and Ducting in 6, 8, 10, and 14 inch inside diameters. Furnished in 4-foot straight lengths, Vyflex Rigid Polyvinyl Chloride Pipe and Tubing are produced of completely unplasticized and unmodified polyvinyl chloride by a special process which has been perfected by the manufacturer. Several efficient joining methods may be employed to produce multiple pipe-length installations.

The extremely high degree of chemical resistance and the excellent physical properties inherent in unplasticized Polyvinyl Chloride are maintained in Vyflex Rigid Polyvinyl Chloride Tubing and Ducting. It is an ideal material to use under severe corrosive conditions where large diameter sections, such as in waste systems, exhaust ducts, feeder lines, are required.

For further data circle No. 26 on Reader Service Card inside back cover.

EASY, INEXPENSIVE ADDITIVE FOR YOUR PICKLING ACIDS

THOR-O-INHIBITOR

Reduce attack of base metal to minimum

- CUT DOWN ON FUMES
- ELIMINATE ETCHING
- RESIST RUST

Can be used in MURIATIC and SULPHURIC acids.

Cheerfully we will mail complete details—
We will also answer any specific problems—
No obligation!

Another PROGRESS item in the line of

THOR CHEMICAL & EQUIPMENT CORP.

77 South 5th Street Brooklyn, New York
Telephone EVergreen 8-5502

Protective Metallic Coating

An anti-rust coating said to form a permanent protective shell of aluminum "metal" has been announced by the industrial division of the Woodhill Chemical Co., Cleveland, Ohio. It

Not Only Chemicals
But "Know How" Too
When
You Buy...

SURPHOS

The Metal Phosphating Chemical
that Prepares Metal for Painting

SURPHOS
Is Easier to Use:

dissolve in hot water to a concentration of one ounce per gallon and apply to metal by dipping or spraying. Acid proof equipment not needed.

SURPHOS CLEANS . . . FORMS PHOSPHATE COATING . . . PREVENTS RUSTING DURING STORAGE . . . IMPROVES ADHESION OF PAINT . . . INCREASES HUMIDITY and SALT SPRAY RESISTANCE of PAINT

Our Experts Will Help You "Set Up" Your System and KEEP it working . . . .

INDUSTRIAL CHEMICAL PRODUCTS CO.
3778 BELLEVUE AVENUE DETROIT 7, MICH.

is "Duro Aluminum Shell Coating" for protecting iron, steel, aluminum and wood surfaces.

The manufacturer states that the coating exceeds government salt spray tests, and when brushed or sprayed, it produces a non-porous, anti-corrosive coating that not even ethylene glycol or penetrating oil will seep through. Aluminum Shell Coating is composed of atomized aluminum (in the form of shot) that is bonded onto the surface with a patented fluxing vehicle. It dries dust free in less than one hour — and dries to a metallic hardness in six hours.

In addition to its uses to protect structural work, it is ideal for coating porous castings and metal signs; coating automobile bodies, and so on.

For additional information write to The Industrial Division, The Woodhill Chemical Co., 1391 E. 33rd Street, Cleveland 14, Ohio, or circle No. 27 on Reader Service Card inside back cover.

Distributors in Principal Cities

FILTER

*Reg. App. for

50-1500 GAL/HR

ANY ELECTROPLATING SOLUTION

NO PITTING NO ROUGH DEPOSITS

Model LSIN-10
Cap. 100 gal/hr

• Filters all solutions from pH 0 to pH 14. • No loss of precious solutions. • Filter Assemblies—H.T.Lucite, SS 316, Rubber-Lined, Haveg or Sethrin*. • Filter Tubes—Cotton, Dynel, Porous Stone, or Porous Carbon. • Pumps—SS 316, Hastelloy, Plastic; Centrifugal or Self Priming.

Sethco MFG. CO.

70-72 Willoughby St., Brooklyn 1, N. Y.

Paint Stripper Application Chart

An Application Chart for Paint Strippers is now available by writing

Industrial Sales Manager, Wyandotte Chemicals Corporation, Wyandotte, Michigan.

Listed on this chart — enlarged reproduction of which is shown in the photo — are the following headings — "Type, Used On, How Used, Features and When To Use."

Detailed directions for the four Wyandotte Paint Strippers listed on the chart, as well as data on metal cleaners and related products, are also available.

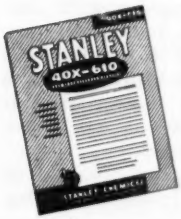
Panel Heaters

Curved Thermo-Panels are designed to solve many heat exchange problems. Thermo-Panel Division, Dean Products, Inc., 616 Franklin Ave., Brooklyn, N. Y., has announced that Thermo-Panels are available not only in

Weatherproofs in ONE OPERATION

Stanley 40X-610 one-package WASH-PRIMER

Now steel or iron parts can keep the weather at bay throughout a year of outdoor storage without topcoating. Reason: Stanley 40X-610. This one-package, one-operation wash primer for spraying, brushing, or dipping forms a weather-tight skin that lasts. Its resistance to corrosion and rust creep is excellent. And Stanley 40X-610 may be used with most topcoats. Find out more about this low-cost, easy-to-apply outdoor protection . . . write today for the new bulletin on Stanley 40X-610 to: Stanley Chemical Company, 31 Berlin Street, East Berlin, Connecticut.



LACQUERS

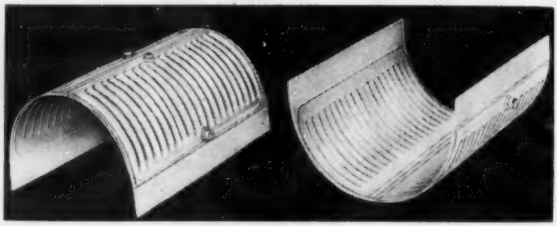
JAPANS

SYNTHETICS

ENAMELS

STANLEY CHEMICAL

Curved Thermo-Panels



flat plates but in special shapes such as illustrated in the attached photo.

Thermo-Panels may be incorporated in the construction of tanks, vats, kettles, where they are used as part of the structural elements of the vessels. They are said to be easier to install and clean than pipe coils.

Thermo-Panels are also available in special shapes such as L's and cylinders and in a wide range of materials, including steel, stainless steel, Monel and other special alloys.

Complete details and price list may be obtained by writing the manufacturer, or by circling No. 28 on Reader Service Card inside back cover.

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COP-BRITE

NEW, BRIGHT COPPER PROCESS

FOR ALL BARREL AND STILL CYANIDE SOLUTIONS

A One-Material Brightener

- Yields a faster, brighter finish • Produces a softer, smoother deposit
- Eliminates cyanide fumes • Provides greater economy

Details on Request

JELCO FINISHING EQUIPMENT CORP.

153 East 26th Street, New York 10, N. Y.
LExington 2-3055

Simultaneous Cleaning and Phosphatizing

Metacote, a method for simultaneously cleaning and phosphatizing metal surfaces in preparation for finishing, has been developed by Metasurf Corporation, 12830 Eaton Avenue, Detroit 27, Mich.

Metacote is stated to be effective for cleaning all normal types of soil. It deposits a hard, tight, close grained phosphate coating on the metal surface which inhibits corrosion and acts as a bonding film for the subsequent finish.

Metacote may be used on steel, iron, aluminum, zinc, and cadmium, and eliminates any fear of surface dirt or potential paint failures.

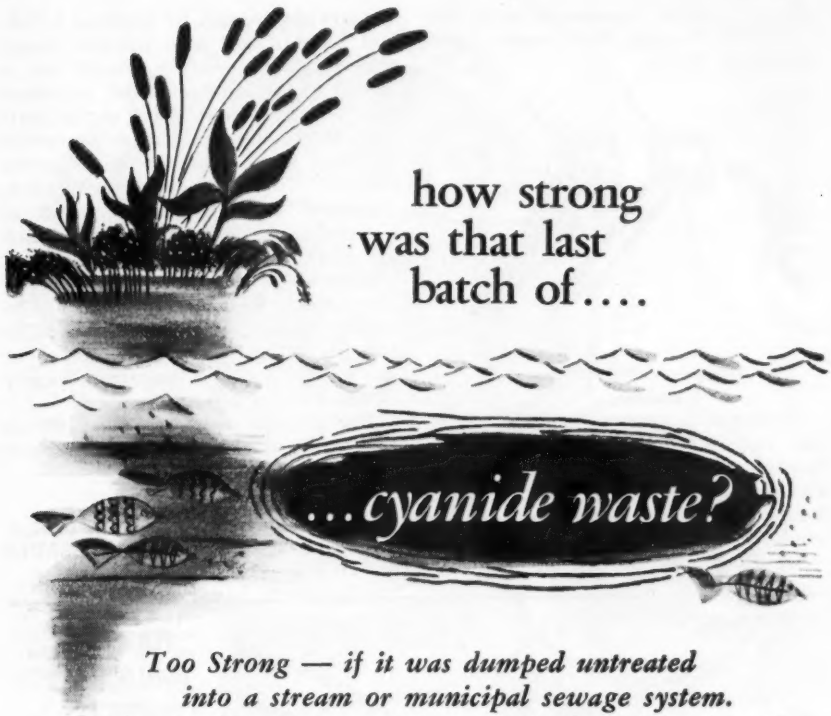
No special equipment is necessary as Metacote may be used in mild steel spray washers or in immersion processes. It is supplied in powder form and used at low concentrations in a water solution. There is no control or maintenance problem as no heavy scale or sludge is formed.

For further data circle No. 29 on Reader Service Card inside back cover.

Flange-Type Immersion Heaters

Single and double flange-type heaters have been added to General Electric's Calrod* immersion heater line,

* Registered Trade Mark of the General Electric Co.



Too Strong — if it was dumped untreated into a stream or municipal sewage system. Toxic cyanide wastes can be completely oxidized and destroyed at controlled pH values by the widely used alkaline chlorination process.

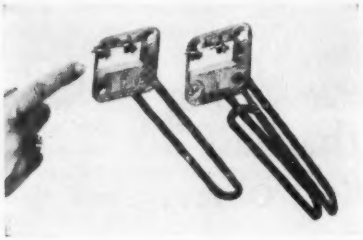
Based on the experience of hundreds of installations in the metals treating and finishing industries, Wallace & Tiernan is prepared to help you solve, in conjunction with your Consulting Engineer, any cyanide or chromium waste problem.

Write today for additional data on automatically controlled Alkaline Chlorination and Chromium Reduction Equipment. S-86

WALLACE & TIERNAN

25 MAIN ST., BELLEVILLE 9, N. J.

according to an announcement by the Industrial Heating Department, Schenectady 5, N. Y.



Flange-Type Immersion Heaters

Designed to operate on either a.c. or d.c. circuits at 115 or 230 volts, the heaters can be used in water baths, cleaning tanks, humidifiers, quench tanks, stills, sterilizers, and similar equipment.

Offering a high watt density, the heaters are formed by bending a Calrod tubular unit into hairpin shape, the ends of which are brazed into a flange. A silicone seal and porcelain insulator are incorporated at the heater's terminal ends as a protective measure against vapors and liquids, and to provide electrical insulation. Terminal connectors are welded to low-resistance cold terminals which are attached to the resistance wire.

Suitable for maximum working pressures up to 125 p.s.i., according to G-E engineers, the heaters are engineered to meet low-pressure boiler specifications of the American Society of Mechanical Engineers.

For further data circle No. 30 on Reader Service Card inside back cover.

For further information on any product mentioned in this issue—use the READER SERVICE CARDS between the covers.

CLAIR
MODEL 206-A
SURFACE FINISHING MACHINE

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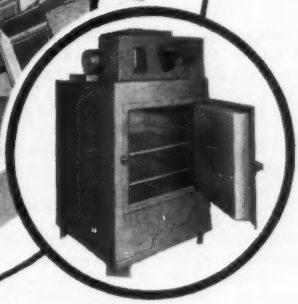
Wrenches, pliers, screw drivers, ax heads and other hand tools are surface finished most efficiently on this machine. It is designed for either magnetic or mechanical holding fixtures.

CLAIR MANUFACTURING CO., INC.
Specialized Machine Equipment For Glazing and Polishing Operations
OLEAN, N. Y.

REPLACE OBSOLETE OVENS WITH A MODERN FINISHING SYSTEM



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for every conceivable product on a mass production basis. If you contemplate NEW FINISHING EQUIPMENT write to Young & Bertke

DEPARTMENT 745

Wide experience and continuous research enable Young & Bertke to build and design both Large and Small Ovens exactly suitable for a wide variety of products — such as the large oven pictured above used by the Charles William Doepke Mfg. Co., in the finishing operations of NesTier Tote Boxes. This specially designed oven reduced heating costs 20% and increased production 13% — but has a hundred percent increase production capacity.

The **YOUNG & BERTKE** Co.

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NEWS of the Industry

NEW PLANTS

Ground has been broken for **PITTSBURGH PLATE GLASS COMPANY'S** new $34,000,000 plate glass producing plant. Designed for straight line production, the plant will be nearly three-quarters of a mile in length.

Harry B. Higgins, president of Pittsburgh Plate, turned the first shovel of earth at the 603 acre plant site located three miles below Cumberland on the Potomac River.

Richard B. Tucker, executive vice president of the firm, served as master of ceremonies at the groundbreaking program. Brief remarks were made by Governor Theodore R. McKeldin; Senators J. Glenn Beall and John Marshall Butler; Congressman DeWitt J. Hyde; Roy W. Eves, Mayor of Cumberland; and William H. Lemmert, president, Board of Alleghany County Commissioners.

Several new high vacuum systems, larger than any now in industrial use, and capable of operating at lower pressures than are achieved by any present production equipment, are being built by the **CONSOLIDATED VACUUM CORPORATION.**

Work on this new equipment was revealed by J. Kneeland Nunan, president, as the company moved into its new plant at 1775 Mt. Read Boulevard, Rochester 3, New York.

Among the units under construction, Mr. Nunan said, is a high vacuum furnace that will be able to melt and pour 1,000-pound ingots of metal and that will operate continuously without breaking the vacuum.

Vacuum furnaces are used for smelting some of the new oxygen-sensitive metals such as titanium and zirconium, and for refining and purifying other elemental metals and alloys.

The new Consolidated Vacuum Corporation plant, which was officially opened with an "Open House" celebration, is the world's largest plant devoted exclusively to the manufacture of high vacuum equipment, according to Mr. Nunan. It provides 94,000 sq. ft. of floor space, and is fully equipped with the most modern manufacturing facilities.

A special feature of the plant is an 800-square-foot level floor on which the equipment is aligned to the close tolerances required for high vacuum systems. This floor is constructed of one-inch plates of milled cast iron, based on concrete slabs. The most careful tests with accurate surveying instruments have not been able to detect any deviations in this level floor, Mr. Nunan stated.

Since dust-free atmosphere also is important in the manufacture of high vac-

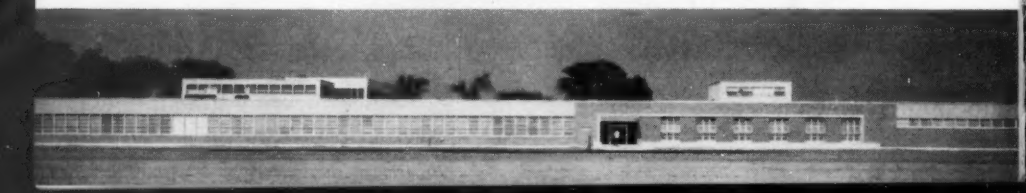

Fig. 1—The world's largest plant devoted exclusively to the manufacture of "high vacuum" equipment is the new home of Consolidated Vacuum Corporation. Located in a recently-developed industrial section of Rochester, New York, the new plant occupies 94,000 square feet of a 50-acre site.

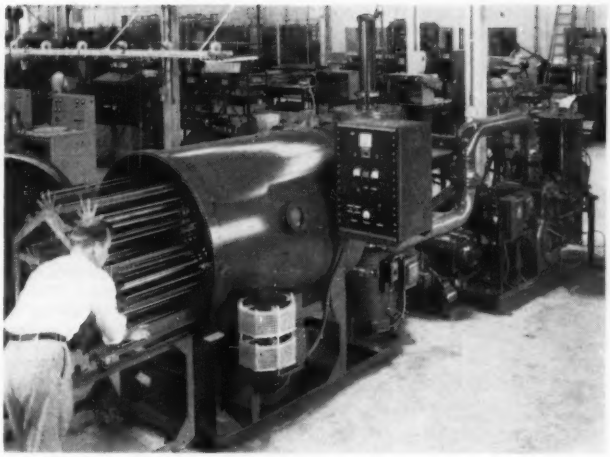

Fig. 2 — Undergoing final tests in the new Consolidated Vacuum plant is a 48-inch vacuum coater. It is one of a series of standard CVC units employed by the finishing field to apply mirror-like metallic finishes to metal, plastic, and glass parts.

uum equipment, an automatic ventilating system, which filters all the air entering the plant, has been installed. In addition the manufacturing area has the hardest, most impervious floor finish that is known to construction engineers.

The new Los Nietos Plant of **WYANDOTTE CHEMICALS CORPORATION**, J. B. Ford Division, is now in production. Located at 8921 Dice Road, Los Nietos, California, 16 miles southeast of the heart of Los Angeles, the new facility is one of the largest installations on the Pacific Coast for the production of specialized cleaning materials for business and industry. Wyandotte Chemicals' Los Angeles District Sales Office has moved to the Los Nietos plant as well as have all of the Wyandotte Pacific Coast manufacturing operations.

The new plant will also house modern and complete facilities for Wyandotte's West Coast Research and Technical Service Staffs. The new, functional plant is equipped to produce both liquid and powdered, sanitary and maintenance cleaners, germicidal products, as well as specialized cleaners for metal cleaning, power laundering and citrus fruit processing. Special products will also be produced in Wyandotte's Los Nietos Plant for the aircraft, railroad and petroleum industries.

COMPANIES

Increasing problems caused by disposition and treatment of waste materials by industry have prompted **KAIGHIN & HUGHES, INC.**, Toledo, Ohio, to organize an Industrial Wastes Division with **EDMUND B. BESSELIEVRE** as manager of engineering services.

Wyandotte Chemicals Corporation Los Nietos Plant.

The **DETREX CORPORATION** of Detroit has adopted a new label design for users of the Detrex "Paintbond" phosphate coating process, and a unique,

Detrex "Paintbond" Sticker Dispenser

new dispenser to simplify the task of attaching the labels to end products. The free form of the three-color label was selected to minimize the time-consuming problem of "lining up" the ordinary square-corner label on the product. The dispenser automatically peels off the protective backing from each sticker, as it "feeds" the sticker for quick application.

Announcement has been made of the formation of the **BALDWIN-GREGORY COMPANY**, located at 121 Kemp Avenue, Fair Haven, New Jersey, as consultants on hot dip galvanizing.

The company will specialize in the surveying of existing plants or departments and recommending improvements. It will p'an and supervise the installation of new plants or rearrangement of present ones, including assisting in securing of equipment, designing of special equipment and training of operating personnel.

The new company will bring to bear over twenty-five years of experience in the practice and theory of hot dip galvanizing in its top executives, Allen T. Baldwin and William P. Gregory. Mr. Baldwin is manager of flux sales with Hanson-Van Winkle-Munning Co., at Matawan, New Jersey, and Mr. Gregory is vice president of New Jersey Galvanizing and Tinning Works, Inc., at Newark, New Jersey. Both men will retain those positions in addition to functioning as executives of Baldwin-Gregory.

The U. S. Automatic Corporation of Amherst, Ohio, manufacturer of screw machine products and industrial equipment, has announced the formation of **BEDE PRODUCTS CORPORATION.** The company is a wholly owned subsidiary of the U. S. Automatic Corporation and has acquired the exclusive manufacturing and sales rights of present Bede Products and additional inventions which Mr. Bede and the U. S. Automatic Corporation will develop in the future.

The newly formed subsidiary will p'ace special emphasis on the engineering and the application of Bede paint heaters for all types of applications. Particular attention is being given to the Airless Spray Painting Unit.

Manufacturing and engineering will be moved to the parent plant at Amherst. Sales offices will remain in Cleveland.

Officers of the company are: W. G. Nord, chairman of the board; Eric T. Nord, president; Col. James H. Frier, vice president and general manager; James A. Bede, vice president in charge of research and development.

THE PENNSYLVANIA SALT MANUFACTURING COMPANY, 104 year old producer of industrial and special chemicals, conducted a one day conference on surface maintenance and cleaning problems in the railroad industry.

Sponsored by sales manager H. F. McIntyre of the Pennsalt Maintenance Chemicals department, the conference was held at the Company's Research & Development Laboratories at Wyndmoor.

Guest participants were representatives of the engineering, operations, maintenance and purchasng departments of leading railroads including the Baltimore & Ohio, Chesapeake & Ohio, New York Central, Pennsylvania, and Pittsburgh & Lake Erie companies.

The morning session, dealing with railroad equipment cleaning problems, was opened by Dr. W. A. LaLande, Jr., vice president and manager of Research & Development. Highlighting the afternoon session were a description of Pennsalt's new paint stripping technique and explanation of the Company's phosphatizing process for improved adherence of paint on metal surfaces. Principal speakers were Dr. John F. Gall, director of inorganic research, and staff members Dr. Samuel Spring, J. F. Hawley and J. W. Carroll.

New materials introduced during the past year by the company's product development laboratory will be featured by **OAKITE PRODUCTS, INC.**, at Booth 1601 at the National Metal Exposition in Chicago.

Reflecting the company's continuing research in the fields of cleaning, metalworking, pickling and rust removing, the new compounds include Oakite Pickle Control No. 5, a liquid inhibitor for pickling solutions that develops its own foam blanket; Oakite Rustripper, an alkaline rust remover that does not cause hydrogen embrittlement; Oakite Composition No. 160, which gives a fast, uniform etch to aluminum, while eliminating hard sludge buildup on equipment; Oakite Composition No. 161, designed to clean aluminum in spray washing machines without excessive foaming; and Oakite Composition No. 191, for electrocleaning of copper and its alloys. Other Oakite materials, and the results achieved with them, will also be exhibited.

F. J. McNally, manager of Oakite's Chicago division, will be in charge. Also in attendance will be technical service representatives H. W. Hart, W. W. Cothran, W. L. Higgs, V. T. Wissen, E. H. Olson, A. A. Becker, R. J. Becker, K. J. Birdwell, T. A. Sailor, and A. H. Green. The men will make their headquarters at the Conrad Hilton.

METALWASH MACHINERY CORPORATION introduces its new 20-page full-line catalog of machinery for metal parts processing in a novel tie-in with their 46-foot booth at the Metals Show in Chicago, November 1-5.

The Metalwash exhibit, a giant spectacular consisting of flashing lights and giant motion displays offers the visitor a giant size preview, page by page, of the new Metalwash catalog. In the presentation 122 different types of processing machines are described, illustrated, or demonstrated.

Individual booths for Washing, Pickling, Drying, Degreasing, Tempering, and Accessories, each will introduce the visitor to the particular part of the new Metalwash catalog of special interest to him.

Metalwash will have a full-size Flat Belt Wash and Dry machine and a scale

For Dust Free Finishes!

BOND TACK CLOTH

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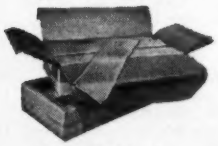
Cut off any size piece to use as needed.



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Get your Tack Cloth packed just the way it's easiest for you to use . . . either in 150 yard rolls of 36" wide cloth or in handy cartons . . . 100 or more Tack Cloths to the carton.

No matter which way you buy it, you can be sure that every square inch will stay SOFT and TACKY until the very last bit is used up!

The Cut Bulk size is 18" x 36" . . . folded to 4½" x 18" for ease of handling. ALL BOND TACK CLOTH is *Spontaneous Combustion Proof, Lint-Free* and *Wax-Free*. Gives a sparkling speck-free Finish *every time*. Clean and sanitary. No waste.

TRY THEM and COMPARE RESULTS. Samples Gladly Sent Upon Request.

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"The Tacky Wiper Specialists"

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ALSO INDIVIDUALLY PACKED IN GLASSINE ENVELOPES —144 to the Carton

A WARRANTY OF SATISFACTION IN EVERY CARTON

model Conveyorized Degreaser on the floor of the booth, both operating. In addition there will be a dramatic demonstration of the Metalwash Safety Friction Clutch; visitors will be invited to stop the drive of a powerful motor with their bare hands.

Literature will be available on all divisions of the company, and factory representatives will be on hand to explain the principle and operation of the 122 processing machines described and illustrated in the Metalwash exhibit.

The Metalwash exhibit will be in Booth 1467.

PLATECOIL DIVISION of **TRANTER MANUFACTURING, INC.**, Lansing, Mich., will participate in the National Metal Exposition of the American Society for Metals, Nov. 1-5, in Chicago. The Lansing firm will have its exhibit in Booth 1353 in Chicago's International Amphitheatre.

Tranter Mfg., Inc., makes Platecoil, a heat transfer unit, that consists of two embossed sheets of steel and special alloys seam and spot welded together, to provide channels for passage of heating or cooling media. The units are used in many industrial heating and cooling processes.

The heat transfer units have a broad application being used in electroplating, phosphatizing, spray washers, degreasers, pickling, anodizing, cooling quench oil and scores of other processes in metalworking.

The cleaning and surface treatment of metals will be featured by **E. F. HOUGHTON & CO.** at its display in Booth 1010 at the National Metal Show to be held in Chicago the first week in November.

A new alkaline cleaner for still tanks requiring only moderate agitation for the removal of ordinary shop soils will be demonstrated in the Houghton booth. This is Houghto-Clean 402-403, a combination of detergent and wetting agent. It is intended to replace volatile solvent solutions which are fire hazards in a production plant.

Phosphate type cleaners, intended to prepare metal surfaces for final finishing or better paint adherence, will also be demonstrated. These are Houghto-Clean 313-A for iron and steel parts, Houghto-Clean 313-NF for non-ferrous metals. These surface conditioning products remove soil and deposit a light phosphate coating to provide increased adhesion for paint or lacquer. They also act as rust preventives and retard undercoat corrosion.

Houghto-Phos is another conditioner to be shown. This material applies a uniform deposit of zinc phosphate on parts to improve adhesion of final coatings or to act as a base coat to facilitate drawing or extrusion.

Houghton's regular line of Rust Veto and Cosmoline products will also be displayed, featuring a new Aerosol can of rust preventive known as Rust Veto Spray.

The Houghton exhibit will also include a demonstration of the non-flammability of Houghto-Safe Hydraulic Fluid.

Antisep All-Purpose Base will be used as the coolant in an automatic screw machine production operation conducted in Houghton's booth showing the increase in speeds possible with this modern type coolant.

Appointment as national distributor in the United States and Canada to the metal finishing industry for Uscolite—the new thermoplastic piping, fittings and valves manufactured by the U. S. Rubber Company—has been announced by Guy A. Cummings, Metal Finishing sales manager for **FREDERIC B. STEVENS, INC.**, Detroit 16, Michigan.

Uscolite pipe is rigid, tough, lightweight and corrosion-resistant. It can be cut and threaded with standard equipment. It is non-toxic and chemical resistant, serving well for sensitive chemical solutions, deionized and demineralized water, and plating solutions.

In the September issue of its monthly publication, "Tin News," **THE MALAYAN TIN BUREAU**, 1028 Connecticut Ave., Washington 6, D. C., asserts that Southeast Asia will continue to produce tin and rubber for the Free World as long as the United States wants those essentials of defense.

"Proponents of the scare and scarcity policy in regard to the United States tin supply, most of which comes from Southeast Asia, have become more and more clamorous since the Indo-China armistice agreement in July by which the Communist forces gained control of the northern half of Vietnam, one of the three Indo-Chinese States," observed the Bureau, representative in this country of the tin miners of Malaya, the world's largest producing country.

"Indo-China is not an important pro-

ducer of tin. Its 1943-1953 output of tin concentrates averaged only 157 long tons a year.

"Malaya, Indonesia and Thailand are the largest tin-producing countries in Southeast Asia. Thailand adjoins Indo-China, but Malaya and Indonesia are more remote.

"Malaya is winning its war against the Communist-led terrorists, whose efforts since 1948 to interfere with tin production have been frustrated. Malaya's success in this respect is a far more potent factor in preserving Southeast Asia's tin supply for the United States than is the recent reverse in Indo-China in endangering that supply.

"Rubber and tin, the economic mainstays of Southeast Asia, are essential to the defense of the United States and the Free World. As long as the United States says it wants them, Southeast Asia will provide them."

For the fourth successive year a **LACQUER INFORMATION CENTER** will be a feature of the annual **PAINT INDUSTRIES' SHOW** in Chicago, November 16-20.

The exhibit is being presented through the cooperative effort of suppliers of raw materials for lacquer and of suppliers of equipment for spraying lacquer. It will depict the latest developments in lacquer technology, formulations, and application.

The companies which are cosponsors of this year's exhibit are: **BEDE PRODUCTS, INCORPORATED; CARBIDE AND CARBON CHEMICALS COMPANY, THE DeVILBISS COMPANY; ENJAY COMPANY, INC.; HERCULES POWDER COMPANY; SHELL CHEMICAL CORPORATION**; and the **SPEEFLO COMPANY**.

Technically trained representatives of the various sponsoring companies will be in attendance at the exhibit.

WAGNER BROTHERS, INC., 432 Midland Ave., Detroit 3, Mich., has announced that it can now offer the complete line of Vanton P!astic products including flex-i-liner pumps, centrifugal

Yes, We've Got it!
EVERYTHING-
from A to Z
in
PHOSPHATE COATINGS—
ASSURING YOU SUPERIOR PAINT BONDING
AND RESISTANCE TO CORROSION!
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ZINC, CADMIUM, etc.
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Bulletin A 54-98
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● You are assured the finest results in the preparation of Aluminum, Iron and Steel surfaces before painting by using Lyfanite, the superior phosphate coating that gives enduring paint protection, increased resistance to corrosion and a substantial saving in both material costs and maintenance costs.
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pumps, valves, pipe and fittings. Manufactured entirely of plastic, synthetic or natural rubber, this equipment offers excellent resistance to most inorganic acids, alkalies, salt solutions as well as many organic chemicals and can be used safely at temperatures up to 225 deg. F. This wide range of diversified application enables these products to handle the most difficult chemical solutions such as hydrochloric, sulfuric and chromic acids and many others encountered in the plating industry. Thoroughly tried and tested in industry, these pumps are being successfully used in plating shops across the country.

New basic materials for protective coatings and new developments in established paint, varnish, and lacquer materials will be featured in **HERCULES POWDER COMPANY'S** exhibit at the annual Paint Industries Show in Chicago, November 16-20.

Displays will depict applications and products such as pentaerythritol for resins; "Abitol," hydroabietyl alcohol for alkyds; two new "Pentalyn" resins; and P.E.-based "Cellolyn" resins.

Also exhibited will be lacquers; "Parlon," Hercules chlorinated rubber; a new cellulose derivative, ethyl hydroxyethylcellulose; and a panel that will list many other Hercules products for protective coatings.

Technical representatives from Hercules departments which supply the protective coatings industry will be in attendance at the exhibit throughout the show.

THE DOW CHEMICAL COMPANY has announced the opening of a Chicago Terminal office to provide improved customer service in the distribution of its products in a six-state marketing area including Minnesota, Wisconsin, Iowa, Illinois, Indiana and Michigan. The office, which will supervise Dow operations at three Chicago terminals, is located at 3030 South Ashland Avenue.

In line with its expansion in the Chicago area, the company has just added new storage facilities at General American Tank Storage Terminals to its distribution network. This terminal will ship liquid chemicals by tank car, tank truck and in drums. Among products to be handled are hydrochloric acid and the chlorinated solvents, carbon tetrachloride, perchloroethylene, trichloroethylene and methylene chloride.

L. R. Sulik, in charge of the company's Eastern Terminal Office at Newark, N. J., will also head the Chicago Terminal Office.

NEW POSITIONS

Dr. Zeno W. Wicks

DR. ZENO W. WICKS has been appointed general manager of Interchemical Corporation's central research laboratories in New York, according to an announcement by Norman S. Cassel, vice president for research and development. Dr. Wicks will be responsible for the administration of the research effort at this location which, combined with the work of the various laboratories of the divisions, constitutes the technical attack of the corporation in relation to printing inks, industrial finishes, textile colors and chemical coatings.

Dr. Wicks is a graduate of Oberlin College and received his doctorate from the University of Illinois in 1944, the same year he joined Interchemical. He has held a number of posts within the corporation, at the central research laboratories and several of the divisional laboratories and production units.

Jack H. Senger

JACK H. SENGER has been appointed a sales engineer in the Detroit area, it has been announced by Howard J. Ward, Michigan district sales manager of the Udylite Corporation.

Mr. Senger has been with Udylite for a year and a half as a salesman in the Plastics Division.

Previous experience includes supervision of machine and conveyor layout engineering

at Sherwood Industries, Detroit, and selling for the Dysen Company, Detroit.

He will service the area from the Detroit office at 1651 E. Grand Boulevard.

Leo Buchine

LEO BUCHINE has been appointed vice president and general manager in charge of manufacturing at the Industrial Washing Machine Corporation of Matawan, N. J., manufacturer of specially designed machines for cleaning metals and other products. Mr. Buchine was formerly associated with the Morrison Steel Company, New Brunswick, N. J., and prior to that had been purchasing and production manager for the J. O. Ross Engineering Corp., New Brunswick, for more than 20 years.

At a board of directors meeting on September 24, **W. P. WOODSIDE, JR.**, was elected president of the Park Chemical Company, 8078 Military Ave., Detroit 4, Michigan.

Mr. Woodside has been associated with Park for the past 18 years as sales representative in the Cleveland territory.

W. P. Woodside, Jr.

A number of promotions were announced by Robert W. Englehart, president, at the annual sales-service meeting of the Parker Rust Proof Company, held September 23 and 24 at the home office in Detroit. **DR. R. C. GIBSON**, formerly technical director, moved up to assistant vice president. **E. W. RICHARDS** has become technical director. **R. I. PETERSON** was named service manager, and

NEWCOMB-DETROIT

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INDUSTRIAL OVENS
SPRAY BOOTHS
PARTS WASHERS
DUST COLLECTORS
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TR 3-2100

(Left to right) Dr. R. C. Gibson, C. F. Rasmussen, R. I. Peterson, E. W. Richards.

C. F. RASMUSSEN was promoted to assistant service manager.

The sales-service meeting, an annual affair, brings in all Parker sales and service representatives from this country and Canada for intensive training in new products, new developments and new techniques. This year new Parker products include Parker Pre-Namel 420, a treatment to improve adhesion of porcelain enamel; Bonderites 710 and 720, effective corrosion resistants for aluminum and its alloys; and Parcolac 103 Olive Drab, a decorative finish for use over Parco Compound.

Comprehensive exhibits of these new products, as well as of the products which make up the rest of the Parker line, will be on display in the Parker Booth at the Metal Show in Chicago.

Walter H. Prine

The appointment of **WALTER H. PRINE** as head of the Electroplating-Chemical - Catalyst Section of the Nickel Sales Department has been announced by The International Nickel Company, Inc. He will handle commercial relations with distributors and users of nickel for electroplating, for chemical manufacture, and for catalysts.

Mr. Prine joined International Nickel in 1945 as a member of the Plating Section of the Sales Department, working in liaison between the company's research laboratory and the plating field in the development of new uses and the extension of prevailing uses of nickel in this field.

Prior to his association with Inco, Mr. Prine served for seven years with the Lamp Division of Electric Auto-Lite Co. as chief chemist in charge of metal finishing and metallurgical processes. He was also engaged in consulting work in metal finishing in the Cincinnati, Ohio, area. During the war he worked on the development of the production and the finishing of steel cartridge cases.

A native of Cincinnati, Mr. Prine graduated from the University of Cincinnati Engineering College in 1938 with the degree of Chemical Engineer and in 1945 he received the degree of Bachelor of Science in Commerce from the University of Cincinnati Evening College. He is the author of a number of technical papers dealing with nickel plating.

A registered professional engineer, Mr. Prine is a member of the American Electroplaters' Society, the Electrochemical Society and the National Association of Corrosion Engineers.

The J. J. Siefen Company has announced the appointment of **VICTOR C. McBRIDE** as sales representative. He will work out of the home office at 5657 Lauderdale, Detroit, and cover northwestern Ohio and southeastern Michigan as well as Detroit.

Metals Disintegrating Company, Inc., Elizabeth, N. J., manufacturer of metal pigments, metal powders and metal abrasives, has announced that **RICHARD D. TOWN** has been appointed pigment sales supervisor in the Middle Atlantic states.

Mr. Town had previously been associated with Nuodex Products Co., Inc.; C. K. Williams & Co., both in the Cleveland territory, and more recently as assistant to the president of Excelsior Varnish Co. in Cleveland.

In his new work, Mr. Town will assist MD pigments distributors and customers in their pigment problems and applications.

Joseph A. Hager, vice president and director of sales of the Grand Rapids Varnish Corporation, has announced the appointment of **C. A. HAMILTON** as a representative in Wisconsin.

For the past 24 years, with the exception of 3 years of service with the Navy during World War II, Mr. Hamilton has served the needs of users of industrial product finishes. Mr. Hamilton is equally versed in the problems attendant the finishing of wood and metal and he will serve both types of accounts.

Dr. Kenneth C. D. Hickman

DR. KENNETH C. D. HICKMAN, formerly vice president in charge of research of Distillation Products Industries, and consultant to the Eastman Kodak Company, has been appointed research consultant to the Consolidated Vacuum Corporation, Rochester, N. Y., it has been announced by J. Kneeland Nunan, president.

Dr. Hickman will join with the company's other research people in implementing a program aimed at developing radically new methods for producing high vacuum. Announcement of the appointment was made in conjunction with the opening of Consolidated Vacuum's new plant at 1775 Mt. Read Blvd.

Dr. Hickman is internationally recognized as an authority in high vacuum technology and chemistry, and has written numerous papers on subjects in those fields.

He is a graduate of the Royal College of Science, in London, England, and taught there for several years before coming to Rochester.

In conjunction with the announcement of his appointment by the Consolidated Vacuum Corporation, Dr. Hickman revealed that he is currently working on a method for purifying sea water. The technique now has been perfected and a commercial application is being developed under a contract between the U. S. Department of the Interior and a Cambridge engineering firm, he said.

Dr. Hickman is a past president of the Rochester Section of the American Chemical Society.

MEETINGS

The **PHILADELPHIA BRANCH** of the **AMERICAN ELECTROPLATERS' SOCIETY** will hold its **ANNUAL EDUCATIONAL SESSION AND BANQUET** at the Benjamin Franklin Hotel on November 20th.

Featuring the afternoon meeting which starts at 2 o'clock, will be talks by Henry Brown, Udylite Corporation, on "The Role of Surface Active Agents in Electroplating Baths"; Myron B. Diggin, Hanson-Van Winkle-Munning Co., "New Sulfamate Nickel Process"; and Joseph B. Kushner, head of the Kushner Electroplating School, who will discuss "Methods of Control for the Plater." The meeting is open to the public.

The banquet, scheduled for 7 P.M., which will follow the attractive pattern of last year's well-attended affair, will provide door prizes and professional entertainment and dancing.

The **ANNUAL TECHNICAL SESSION** of the **DETROIT BRANCH** of the **A.E.S.** will be held at 8:00 P.M. on Friday, December 3, 1954, in the Statler Hotel, Detroit, Mich.

Charles Conley, Houdaille-Hershey Corp., Research and Engineering Div., will be honorary chairman.

Dr. George Dubpernell, manager of laboratories, United Chromium, Inc., of Waterbury, Connecticut, will speak on "Industrial Applications of the Electrodeposition Processes." Dr. Dubpernell has done extensive work in the electroplating field, with chromium plating being one of his specialties.

The second speaker will be Dr. Ralph A. Schaefer, Clevite-Brush Development Co., Cleveland. Dr. Schaefer is president of the A.E.S. His subject will be "A Qualitative Study of Macro and Micro Metal Distribution in Plating Baths." The talk will cover qualitative data for macro and micro metal distribution. The data was obtained by the plating of cyanide copper and silver, chromium, nickel, stannate tin and electroless nickel on flat and formed cathodes.

The Detroit Branch extends a cordial invitation to all A.E.S. members and guests to attend.

The members of the executive board of the American Electroplaters' Society met in Cleveland, October 23 to complete plans and program for the **42ND AN-**

NUAL CONVENTION of the society and the **1955 INDUSTRIAL FINISHING EXPOSITION**, to be held June 20 through 23, 1955, in Cleveland, Ohio.

Harold E. Bartlett and Albert E. Erickson of the management staff of American Decorating Company, show managers, report that already more than two-thirds of the exhibit space in Cleveland's Public Auditorium, which has been set aside for exhibits, has been contracted for and that the displays will set a new high mark.

The convention and exposition serve to emphasize the growing importance of the expanding industrial finishing market and at Cleveland has been found the ideal location within a night trip from more than 90 per cent of the plants in this important field.

It is expected, according to Eugene L. Combs, general chairman for the gathering, that more than 12,000 production men, supervisors, engineers, chemists and purchasing men whose annual orders top a billion dollars, will be in Cleveland for the meeting.

All the sessions of the Society will also be held in the Public Auditorium for the greater convenience of the guests and members. Proud of its reputation for hospitality, Cleveland is preparing, with the help of the committee headed by Mr. Combs, to live up to the warmth of its welcome to the Society with special events for both men and women.

The Exposition Committee, headed by Leon R. Westbrook, consultant, is in almost daily session with the show management to make this one of the greatest displays of the advancements in the finishing industry.

"See you in Cleveland in June," is the slogan. The committees plan early announcement of detailed schedules of the convention activities.

TRAINING COURSES

The **J. J. SIEFEN COMPANY** has announced a **SCHOOL OF SPRAYING LIQUID BUFFING COMPOUNDS.**

The school is conducted at the factory where all types of spray equipment have been set up. Demonstrations including air control and compound control will be given.

Classes will consist of a four-hour session, and it will be limited in attendance to permit the discussion of individual problems.

Supervisory and operating personnel connected with all types of buffing and polishing operations will be invited to attend at various times.

Starting in November, the school will also be conducted in various cities throughout the country. For further information, contact the director, Ralph Hale, at the company offices, 5657 Lauderdale, Detroit 9, Michigan.

Shown at a meeting of the Exposition Committee are: A. W. Erickson, American Decorating Company; Herb Head, Briggs Manufacturing Company; Miss Irene Grigas, recording secretary; Dr. Ralph A. Schaefer, Clevite-Brush Development Company, Div. of Clevite Corporation, A.E.S. president; Harold E. Bartlett, American Decorating Company; Eugene L. Combs, Diamond Alkali Company; and Howard H. Blouch, Chromium Corporation of America.

In this picture William Beacham, director of the Binks School, is showing a typical class what makes a spray gun work and the causes of faulty performance.

Students pay only for their living accommodations and their transportation to and from the school located in the company's main plant at Chicago.

The third class of the current Fall session of the **BINKS MANUFACTURING COMPANY'S SCHOOL OF SPRAY PAINTING** in Chicago will be held November 8 to 12.

All those connected with, or interested in, the industrial application of paint and coatings, are invited to attend.

Because classes are kept to a maximum of 25 to ensure personalized attention, it is important that application for attendance be made as far in advance as possible. This may be done by writing to E. F. Watts, Binks Manufacturing Company, 3122 Carroll Avenue, Chicago 12, Ill. Reservations for hotel can be made at the same time.

The course is conducted by William Beacham, nationally-known paint chemist and spray painting authority, who is also director of the Binks Research Department. Past classes have been composed of production line employees, foremen and supervisors, jobbers and their salesmen, executives, production engineers, and others whose business is supplying industrial plaints and coatings.

Class members "learn by doing." They operate the equipment, disassemble it, put it back together again, and then conduct tests to see that it is in proper adjustment. Defects encountered in actual production finishing are deliberately produced and the students are required to analyze the fault, make corrections.

Included in the curriculum are such equipment as paint circulating systems, fluid handling pumps, oil and water extractors, flocking equipment, compressors and all auxiliary equipment.

There is no cost or obligation in attending the Binks School of Spray Painting.

meetings OF INTEREST TO FINISHERS

Oct. 30-Nov. 5. 36th National Metal Congress and Exposition, American Society for Metals, International Amphitheatre, Chicago, Ill.

Nov. 15-17. Tenth Annual Meeting, The Magnesium Assn., Hotel Chase, St. Louis, Mo.

Nov. 16-20. Federation of Paint and Varnish Production Clubs, Annual Meeting, Palmer House, Chicago, Illinois.

Nov. 18-19. Fourth Annual Western Regional Conference, National Association of Corrosion Engineers, Los Angeles.

Nov. 20. Annual Educational Session and Banquet, Philadelphia Branch, A.E.S., Benjamin Franklin Hotel, Philadelphia.

Dec. 3. Annual Technical Session, Detroit Branch, A.E.S., Statler Hotel, Detroit, Mich.

Dec. 6-7. Mid-Year Meeting, Institute of Appliance Manufacturers, Netherland Plaza Hotel, Cincinnati, Ohio.

Mar. 26, 1955. Annual Tri-State Regional Meeting, American Electroplaters' Society, Columbus, Ohio.

June 20-23, 1955. 42nd Annual Convention and 4th Industrial Finishing Exposition, American Electroplaters' Society, Municipal Auditorium, Cleveland, Ohio.

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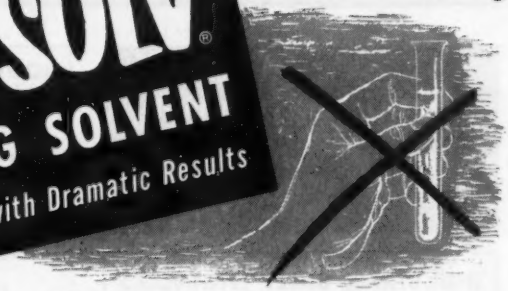

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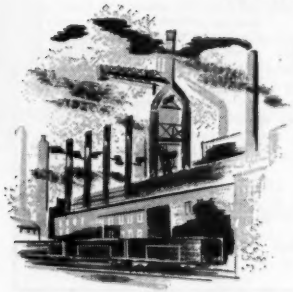

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SYNTHETIC CHEMICALS BOOKLET. All the products commercially available from Synthetics Department, **Hercules Powder Company,** Wilmington, Del., are conveniently listed, with characterizing data, in a new technical booklet.

The booklet includes listing of synthetic resins, plasticizers, pentaerythritol, and nonionic surface-active agents. Certain key properties of the products are included in the listings.

Applications for the synthetic resins, which vary from liquids to high melting solids, include protective coatings, inks, plastics, wood treating chemicals, chewing gum, floor coverings, and adhesives.

Plasticizers for nitrocellulose, polyvinyl chloride, vinyl chloride-acetate copolymers, and polyvinyl acetate; and nonionic surface-active agents useful as detergents, emulsifiers, and aids in textile processing and petroleum production are covered.

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36. Research and Testing Facilities. "Tomorrow's Products Tested Today," is the title of an illustrated booklet available from South Florida Test Service, 4201 N. W. 7th St., Miami 34, Florida. The booklet describes the way in which the company's engineering, inspection, research, and testing facilities are being used to solve industry's problems involving materials and coatings.

37. Metal Processing Baskets. An illustrated folder being distributed by Karyall Body, Inc., Metal Basket Div., 8221 Clinton Road, Cleveland 9, Ohio, covers the metal baskets manufactured by the company. Described in the folder are metal baskets designed for use in pickling, electroplating, heat treating, degreasing, cleaning, and other processes. Baskets are available in steel, stainless steel, Monel, Inconel, brass, copper, or aluminum, formed from perforated or expanded metal, wire mesh, or solid sheet.

38. Backstand Idler. The Belt Master backstand idler, designed to be used with a polishing lathe in abrasive belt polishing and finishing, is described in a catalog sheet available from Matheu Tool Works, 2426 Clybourn, Chicago 14, Illinois. Advantages to be gained through use of the unit are covered in the catalog.

39. Corrosion-Resistant Pipe, Fittings, and Valves. Bulletins entitled "Uscolite Pipe and Fittings," and "Uscolite Diaphragm Valve" are available from Frederick B. Stevens, Inc., 1800 18th St., Detroit 16, Mich. The bulletins describe the chemical and physical properties of Uscolite thermoplastic pipe, fittings, and valves, and suggest applications for the products in the plating and finishing industry.

40. Plating Barrels. An illustrated folder available from Chas. F. L'Hommedieu & Sons Co., 4521 Ogden Ave., Chicago, Ill., describes the various models of plating barrels supplied by the company. Details of construction and specifications of the barrels are included.

41. Spray Booths. Newcomb-Detroit Co., Inc., 5761 Russell St., Detroit 11, Mich., has issued Bulletin No. 4938-B describing Roto Wash Spray Booths, both standard and hevi-duty models. The bulletin contains complete engineering data on these pre-assembled units. Cut-away views show efficient water action; photos show accessibility of interior surfaces; efficiency tests and certification are outlined.

42. Heat Resistant Finish. A new, improved silicone base heat resistant finish for metal products is described in an illustrated folder available from Midland Industrial Finishes Co., Waukegan, Ill. The heat resistant, protective coating may be applied by brush, dip, or spray. Characteristics of the coating, and specific examples of its use in finishing various metal products are covered in the folder.

43. Salt Fog, Humidity Test Cabinet. Bulletin T-Cab 102, issued by the G. S. Equipment Co., 5317 St. Clair Ave., Cleveland 3, Ohio, describes features of the Singleton "H-T Sincolite" Test Cabinet which may be used for all types of salt spray, salt fog, and humidity tests on electroplated or paint finished products.

44. Plating Equipment. A 24-page general catalog pictures and describes a complete line of platers' equipment. Full Automatic Plating Machines included are: Return Types, Straight Lines, Rotarys and Juniors. Barrel plating equipment and accessories are included as well as electrical equipment, filters, dryers and a listing of processes and supplies. The Udylite Corporation, Detroit 11, Michigan.

45. Buffing and Polishing Machinery. Both vertical and horizontal mechanical polishing and buffing machines are described in an illustrated bulletin being distributed by Central Machine Works, 72 Commercial St., Worcester, Mass. Photos of several machines in use in diversified industries are included.

46. Unichrome Series 4000 and 5300 Plastisols. United Chromium, Incorporated, has released a bulletin describing the physical and chemical properties offered by Unichrome Plastisol Compounds. Used for coating, casting, or molding, these versatile vinyl compounds open entire new fields to the engineer, designer, product finisher, and architect. Copies of Bulletin VP-1 may

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be obtained from United Chromium, Incorporated, 100 E. 42nd Street, New York 17, N. Y.

47. Surface Finishing Equipment. A catalog folder illustrating and describing special purpose fixture equipment for precision surface finishing is available from Roto-Finish Co., 3704 Milham Rd., Kalamazoo, Mich. Equipment featured includes the Roto-Tron, Roto-Matic, Stationary Fixture Machine, Dual Action Machine, 8 Door Machine, and Multi-Compartment Machine.

48. Vapor Degreasers. Bulletin No. 953-1, available from Ramco Equipment Corp., 803 Edgewater Rd., New York 59, N. Y., describes the Ramco Vapor Degreasing Process. Covered are vapor spray, liquid spray, and conveyorized degreasers, and solvent stills. The various types of degreasers and the Ramco Cleanout Indicator are illustrated and described.

49. Water Softener. Bulletin 211, available from Industrial Filter and Pump Mfg. Co., 5904 Ogden Ave., Chicago 50, Ill., describes the application and operation of Industrial Zeolite Water Softeners in providing soft water from finishing operations. Design and construction features of the softeners are fully explained.

50. Oxidizing Solution. "Oxy-Dyz-Ene," a concentrated solution which can be used to prepare oxidizing solutions for treating copper, brass, steel, iron, bronze, silver to produce various dark surface colors, is described in a leaflet available from Krembs & Co., 669 W. Ohio St., Chicago, Illinois. Instructions for treating the various metals to produce different colors are outlined.

51. Plating Rectifier. The Kocour Model 25A "Continuous Duty Rated" Rectifier, operating from 115 volts, 60 cycle a.c. input and producing 25 amperes at 6 volts d.c., is described in Form YM24, available from Kocour Co., 4814 S. St. Louis Ave., Chicago 32, Illinois. Design features that produce operating advantages are stressed in the leaflet.

52. Pre-Coated Metal. Andwall Coil-Cote, pre-coated metal coil stock, is described in a colorful folder available from Andwall Manufacturing Co., Ixonia, Wisconsin. The folder discusses the properties of the paint finished metal, outlining advantages to the user.

53. Silk Screen Process. Catalog No. 27, listing silk screen process colors, equipment, and supplies for successful silk screen printing, is available from The Naz-Dar Co., 461 Milwaukee Ave., Chicago 10, Illinois.

54. Cleaning Compounds. Brulin Industrial Cleaning Compounds, including Brulin's Liquid Steam Cleaning Compound Formula 711SC, Brulinsolv degreasing solvent, Brulin's solvent degreaser, and Brulin's rust and scale solvent, are described in a folder available from Brulin & Co., Inc., Dept. PF, 2939 Columbia Ave., Indianapolis 7, Indiana.

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55. Metal Cleaning Guide. Oakite Products, Inc., 20 Rector St., New York 6, N. Y., has published a 44-page illustrated booklet, "Some Good Things to Know About Metal Cleaning," which reviews the many cleaning, pickling, and metal surface treatment procedures employed to clean metal for further finishing.

56. Mechanical Finishing. Hanson-Van Winkle-Munning Co., Matawan, N. J., offers a four-page, two-color bulletin that describes products and equipment used for mechanical metal finishing. The bulletin lists H-VW-M's line of standard buffs, compositions, sisal buffs, brushes, polishing wheels, polishing and buffing lathes, and miscellaneous equipment and accessories. Literature references are included for all products and equipment so a reader will know where to obtain complete details. The bulletin thus serves as a handy index on the entire line of H-VW-M mechanical metal finishing products. For copies of Bulletin MF-100, write to John Karinja, Hanson-Van Winkle-Munning Co., Matawan, N. J.

57. "Formbrite" Booklet. A 12-page booklet on "Formbrite," has been released by The American Brass Company. Formbrite is metal which is stronger, harder and springier than the usual drawing brasses, yet retains remarkable ductility for forming and drawing and takes sharp, clean-cut ornamental die impressions. Case histories of this metal are reported to show how applications of Formbrite have contributed to better finished products. Available without charge from The American Brass Company, Waterbury 20, Conn. Ask for Publication B-39.

58. Spray Booths. Despatch engineered spray booths, both water wash and dry type, are illustrated and described in Bulletin No. 66, being distributed by Despatch Oven Co., 619 S. E. 8th St., Minneapolis, Minn. Construction, operation, and maintenance of the various booths is described in the bulletin.

59. Liquid Filters. A four-page illustrated folder, Folder F 10-54, describing Wagner Brothers' line of permanent membrane type liquid filters, is now available. The folder tells how efficient, low cost clarification of solutions is made by filtering acid, alkaline or neutral liquids through a series of permanent membranes (wire well screen, porous stone or porous carbon) caked with diatomaceous earth, to remove all suspended particles down to 1/10 micron. Write to: Filter Division, Wagner Brothers, Inc., 432 Midland Ave., Detroit 3, Mich.

60. Zinc Plating Solution Purifier. A circular detailing the purifying functions of McKeon's "Zinc Brite" in cyanide zinc plating solutions is available from Sulphur Products Company, 228 McKeon Way, Greensburg, Pa. Contains information of general interest concerning the importance of purification for proper functioning of zinc plating solutions.

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Servel CUTS METAL CLEANING COSTS 2/3

A sure and easy way to cut your cleaning costs is to follow the lead of Servel, Inc.—

In the production of their automatic ice maker refrigerators and air conditioning products, metal cleaning plays an important role in relation to both quality *and* costs. And, on those parts which are porcelain enameled, the importance of metal cleaning is especially critical. Here are the savings that resulted when Servel and the local Detrex field technician worked together on the subject.

To begin with, a Detrex cleaner specially developed for porcelain enamelers was recommended. Results on a lab basis looked good . . . production results were outstanding. On the basis of accurately compiled data, costs have dropped ⅔ . . . one million square feet of metal is cleaned at a total cleaner cost of less than $60.00. Quality is excellent.

Guaranteed results in your plant, too . . .

We guarantee to improve your cleaning operations, regardless of the parts being processed, the soil being removed, or the type of cleaning required! Only Detrex can make this offer because only Detrex makes *both* the chemicals and equipment for *all* types of cleaning . . . alkaline and emulsion washing, solvent degreasing, even cleaning with sound waves.*

You can get all the facts by dropping us a line. Do it now for lower costs.

**Detrex Soniclean® Process*

DETREX DETROIT

DETREX CORPORATION

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